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ABSTRACT

The basic purpose of Project DELTA (Developing Excellence in Literacy Teaching Abilities) was to design, implement, and evaluate an inservice professional development model to enhance literacy teaching abilities, thereby effecting substantial impact on children's reading-language achievement. Five instructional strands were developed: (1) oral and written expression, (2) literature and self-concept, (3) comprehension and critical thinking, (4) decoding and (5) parent participation. A preservice teacher training component was also developed at the on-site location. Formative data conclusions offer support that teacher behavioral change did indeed occur as reflected in achievement growth by children in kindergarten and grades one, two, and three. Many of these reading-language gains were not only significant statistically but significant from a practical, applied standpoint as well. In addition, summative data conclusions provided insight into the process and content of model development. Complete descriptive and statistical data are included in the final report. (TO)

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A RESEARCH INVESTIGATION OF A LITERACY TEACHING MODEL

Project DELTA

Developing Excellence in Literacy Teaching Abilities

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1972

U. S. Department of Health, Education, and Welfare
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Dr. Marilyn Hanf--presently reading-language curriculum coordinator for kindergarten through grade twelve of the Pittsburg Unified School District in Pittsburg, California--assumed responsibility for the Oral and Written Language Strand and for helping develop the DELTA Observational Scales. Dr. Hanf proved a highly creative and resourceful individual, constantly pressing for a rational and research base for innovative practices.

Dr. JoEllyn Taylor--currently reading-language resource specialist for the Mt. Diablo Unified School District in Mt. Diablo, California--developed the Literature and Self-Concept Strand and designed the I AM--Self-Concept Assessment Instrument. Dr. Taylor's nondirective and very effective approach to implementing teacher change served as an excellent model for the entire staff.

Miss Barbara Schmidt--currently completing the doctoral program and a staff member of the University of California-Berkeley Site Concentration Team--was responsible for the Comprehension and Critical Thinking Strand and, in conjunction with the DELTA staff, developed the Comprehension Taxonomy. Her high energy level and ability to transfer ideas to classroom practice represented a distinct strength in the project's implementation.

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Dr. Helen Bacon--presently lecturer at the University of California in Davis, California--not only served as full-time assistant project director but also assumed the dual responsibility for teaching the excellent pre-service reading-language course during the first part of the the school year and for developing the Parent Involvement Strand during the last half of the year. Dr. Bacon's ability to handle many intricate details and to assist in program implementation provided for smooth day-to-day operation of Project DELTA.

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Robert B. Ruddell
Arthur C. Williams

January 1972

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Funk, Manfred	1-2-3
Gilman, Charles	K-1
Greer, Mrs. Maxine	K-1-2
Hadlock, Richard	K
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Richmond, Miss Anna	Resource
Rodriguez, Mrs. Juanita	1-2-3
Russell, Mrs. Dorothy	K
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I. DEVELOPING A LITERATE SOCIETY

As we reflect on the past decade, manned exploration of the moon was probably the most romanticized aspect of this technological age. However, our age of technology has produced a sense of rapid change not simply evolving around the sciences but permeating every facet of our educational system. For example, consider the following excerpt from a 1966 article in the San Francisco Chronicle--an article already over five years old:

> At the Oakland Elementary School in Pittsburgh, some youngsters learn to use earphones before they can hold a pencil properly. Their school has none of the traditional classes or textbooks, they teach themselves with tape recorders, film, and special work sheets.
>
> In Los Angeles, computer programs are being developed to help youngsters make more intelligent career choices.
>
> Blind children may learn faster by listening to lessons in 'compressed speech,' which greatly speeds up the normal wordage rate.
>
> These are some of the fruits of the new research boom in the nation's schools...new centers will bring together classroom teachers, scholars from universities, and experts from industry to find better ways to teach.[1]

To the reading-language teacher, the dynamic changes in our society provide not only a challenge but an awesome responsibility. Undoubtedly, our primary task consists of guiding the development of children's communication skills for use in the present and immediate future. At the same time, the children in our classrooms are the Eisenhowers, Kennedys, and Martin Luther Kings of the future--children for the moment, but individuals destined to assume leadership roles within the next three or four decades. Thus, in addition to our primary task, we also have the responsibility to consider learning strategies and attitudes which will enable these potential leaders to be visionaries as well as realists, adaptable to the inevitable changes continuing to occur in our society.

Although most primary-grade children will not evolve into leaders, each child is an individual whose early language learning may help him achieve a varying degree of success or failure. "The right to read" is a phrase frequently heard at national and state levels; and the use of this phrase is undoubtedly prompted by the widely quoted statistics that one of every four students has significant difficulty with reading and that approximately 50 percent of the pupils in large urban school systems read below expected age-grade norms.

---

[1] "Research Boom in the Schools," San Francisco Chronicle, March 14, 1966.

Observing the adult population, we see all too clearly the failure of our educational system. Approximately 15 percent of American adults read at the fourth grade level or below; an additional 25 percent do not reach sixth grade standards. In other words, approximately 40 percent of American adults are not able to function above the reading level we expect from the average twelve-year old student.

It seems almost redundant to state that our goals and priorities need drastic revision. One has merely to read the newspaper in any urban center to realize that we are constantly confronted with budget crises in the schools, failure of school bonds, cut-backs in the U. S. Office of Education budget, and reduced funding for research and development of innovative reading-language programs. Thus, in the world's richest nation, we pay lip-service to catchy phrases such as "the right to read" while simultaneously following policies inevitably producing a future adult population with the same reading-language handicaps found in the present adult population. We berate poverty in a land of affluence and flail aimlessly at heady topics such as "welfare reform"; even though we have been enlightened enough to place child labor laws in our statutes, we provide 40 percent of the adult population with the reading-language competence of a twelve-year-old child and then sit back in amazement, wondering why these individuals fail to meet the educational job requirements of a technological society.

The teacher is obviously the most crucial agent for effecting change in students' proficiency. However, as Heilman points out:

> Two major sources of waste in American education are: first, the failure thus far to devise an effective framework in which elementary teachers, at the local level, can meet together as professionals and share ideas and effective teaching procedures; and second, the very meagre training which potential teachers of reading receive in presently existing teacher training programs. This totally inadequate preparation for an extremely difficult and complicated teaching role would seem to make it mandatory tnat highly effective in-service training programs be developed to fill this very obvious need. The common format of in-service training has proved, however, to be totally inadequate to meet the needs of teachers and school systems. Short term reading conferences and highly standardized 'field courses in reading' have had little impact on the serious problem of reading instruction in American schools.[1]

---

[1] Arthur W. Heilman, "Effects of an Intensive In-service Program on Teacher Classroom Behavior and Pupil Reading Achievement," The Reading Teacher, May 1966, pp. 622-626.

After examining the problem with a group of experimental and control group teachers, Heilman concludes:

> 1. One of the more significant findings of this study is that, given a proper climate for learning and sharing ideas, teachers will work cooperatively to upgrade the effectiveness of their teaching and the level of teaching in the community. A related finding was that the teachers involved in this study demonstrated a surprisingly large array of teaching techniques and classroom learning activities which were 'new' to their teaching colleagues in the same community.
>
> 2. While the mean reading achievement of all pupils taught by the experimental group teachers did not differ significantly from that of pupils taught by control group teachers, the differences that were found favored pupils taught by the experimental group teachers on nine out of ten measures. In-service training which resulted in teacher awareness of sex differences in learning to read appears to have evoked classroom practices which tended to enhance the performance of boys.
>
> 3. A number of teachers indicated that changes in philosophy, use of new techniques, and attitudes related to personal responsibility for continued professional growth will operate beyond the time limit encompassed by the study.[1]

Johnson is equally pessimistic regarding the standard procedures used to effect teacher change. Citing the fact that the schools themselves are bureaucratic institutions tending to inhibit change, he states that removing teachers from the school, giving them special training, and then returning them to the school is an ineffective approach because this procedure "ignores the interpersonal relationships and the norms and and values of the organization of which the individuals are a part."[2] Although possibly a minority, some educators have therefore favored a teacher-training program similar to the DELTA model, i.e., a program with an on-site location designed to effect teacher change within the school setting rather than by courses or special study in a university setting remote from problems encountered in the day-to-day teaching situation.

---

[1] Heilman, op. cit.

[2] David W. Johnson, "Influences on Teachers' Acceptance of Change," The Elementary School Journal, December 1969, pp. 142-153.

In addition (or perhaps as a corollary) to the problem of effecting teacher change is the fact that programs dealing with literacy--particularly those dealing with pre-school and primary-grade reading-language instruction--have generally been inadequate in meeting the needs of various minority segments of our population. Little emphasis is given to the specific language competence each youngster brings to the classroom, and it is certainly not uncommon for a teacher speaking standard dialect to "correct" a child speaking nonstandard dialect, failing to realize that the child is using a consistent grammatical structure evolving from his own language environment. Thus, one crucial aspect of devising a successful reading-language program is to consider and utilize the child's total language performance in formulating the basis for his reading instruction. Furthermore, too little recognition has been given to the social and regional variations of language and their relationship to social and cultural factors, creating important omissions in curriculum development and teacher training--omissions tending to alienate minority group members from our cultural, economic, and educational systems.

Nature of the Problem

Among educators there is general acceptance that oral language, written language, and reading are the primary vehicles for learning and communicating ideas. The acquisition of reading-language skills and the subsequent acquisition of knowledge are two of the most crucial factors which determine one's role in society, the scope of one's influence in his own regional or social group, and one's upward mobility when confronted with new opportunities. It is also generally accepted that the American people are devoted to a public school system in which everyone shares a wide range of experience and obtains the skills and knowledge necessary to further his education and to advance through our political, social, and economic systems at a pace dependent upon his inherent talents and capabilities.

However, our stated principles are frequently devoid of substance, and the problems in our current educational system result from the myriad of conflicts, paradoxes, and contradictions in the foregoing premises. In the same context, because reading-language development, as the pivotal vehicle for participating in the educational process, has failed to reach full potential in a large number of children, the educational progress of these children has been significantly retarded. Education has usually focused on the disadvantaged or culturally deprived status of the children--often causing the teacher to assume that the problem is solely one of social and emotional deficit rather than social and emotional difference and the need to acquire reading and language skills and to develop cognitive abilities.

Guide Questions

On the basis of the foregoing discussion and the related research literature, a series of guide questions were developed to focus the content and process of Project DELTA on the needs of urban children, with special concern for minority group youngsters.

1. What gain in reading comprehension achievement could be expected for children in different ethnic and socio-economic classifications in grade one, grade two, and grade three?

2. What gain in word analysis achievement could be expected for children in different ethnic and socio-economic classifications in grade one, grade two, and grade three?

3. What gain in listening comprehension achievement could be expected for children in different ethnic and socio-economic classifications in grade one, grade two, and grade three?

4. What gain in reading readiness achievement could be expected for children in different ethnic and socio-economic classifications in kindergarten and grade one?

5. What achievement patterns are present for reading comprehension, word analysis, and listening comprehension achievement scores for children in different ethnic classifications in grade two and grade three?

6. As measured by average words per communication unit, what gain in oral language growth could be expected for children in different ethnic and socio-economic classifications?

7. As measured by average words per communication unit, what gain in gain in written language growth could be expected for children in different ethnic and socio-economic classifications?

8. As measured by the DELTA Oral Language Observational Scale, what gain in oral language growth could be expected for children in different ethnic and socio-economic classifications?

9. As measured by the DELTA Written Language Observational Scale, what gain in written language growth could be expected for children in different ethnic and socio-economic classifications?

During the planning stage of Project DELTA, the following exploratory questions were also formulated for the purpose of examining relationships between measures of language performance, examining relationships between ethnic group classifications and children's performance on language and self-concept assessment instruments, and studying questioning levels and strategies used by teachers in the project.

1. What relationship exists between various measures of oral and written language performance?

2. What relationship exists between ethnic classification and performance on the standard and nonstandard dialect features of the Listening Comprehension Inventory?

3. What relationship exists between ethnic classification and performance on the Phonological Spelling Inventory?

4. What relationship exists between ethnic classification and performance on the standard and nonstandard dialect features of the Language Preference Inventory?

5. What relationship exists between ethnic classification and performance on the I AM Self-Concept Assessment instrument?

6. As identified by the DELTA Taxonomy, what questioning levels and strategies are used by teachers in classroom instruction?

Related to implementing the process and content of the program, the following guide questions served to direct the discussion of the summative data of Project DELTA.

1. What process similarities were noted in the development and implementation of each of the five strands constituting the model?

2. What characteristics should an effective strand leader possess to aid in developing the model in the local school?

3. What teacher characteristics were observed to be most helpful and least helpful in formulating the strand and in implementing the model?

4. What skills and content should be included in an in-service education model in the local school?

5. How can the skills and content be most effectively implemented in the local school?

6. What role should parent involvement play in the development of the model?

7. What key factors should be considered in transferring strand skills and content from one group of teachers to another?

8. What values and limitations were present in moving the preservice teacher education reading-language course from the University to the primary-school site?

II. BACKGROUND OF PROJECT DELTA, SITE SELECTION, AND PROGRAM DESIGN

Brief Overview of the Project

Project DELTA[1] was one of five new, innovative reading-language programs funded in 1970-71 by the U.S. Office of Education. The basic premise of the project was that the most significant agent for educational change is the classroom teacher who must assume the final instructional responsibility for implementing the curriculum and for assimilating new methods and technological developments into the educational system. Additionally, it was assumed that reading-language achievement gains stemming from Project DELTA would result from the development of instructional and performance strands compatible with the individual child's needs within the context of his school, home, and community.

The essential function of the project was to design and develop a teacher-training model focusing on the needs of a wide range of pupils with specific emphasis on the inner-city child--a model which could then be transferred to other primary schools in a similar urban setting. Pre-service teacher training in reading-language development was also within the model design and was to be developed on-site. In conjunction with the teachers at Washington Elementary School (Berkeley, California), the project staff developed the five strands of the model: (1) oral and written language, (2) literature and self-concept, (3) comprehension and critical thinking, (4) decoding, and (5) parent participation. The research design of Project DELTA was considered basic in examining the impact of the model on pupil achievement. This research development aspect is of particular interest in that newly designed instruments and stimulus situations were used in conjunction with pre-post measurement on selected standardized tests.

Selection of the City

Because it has some unique characteristics as well as several characteristics common to other urban centers, Berkeley, California was selected as the target city for implementation of the Project DELTA program.

In terms of uniqueness, Berkeley was the first city with a population over 100,000 to completely desegregate its school system, with total desegregation from kindergarten through grade twelve completed in September of 1968. During the past quarter century, the demographic changes in Berkeley have dramatically altered both the ethnic composition and the needs of the educational system--thereby creating many of the paradoxes and contradictions found in other urban centers. The following chart presents the 1968 and 1970 ethnic classifications for Berkeley children.

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[1] The acronym DELTA had symbolic significance in the design and scope of the project; i.e., the literal translation of Greek delta is door, in this case a literacy door for children in the project.

Ethnic Composition of Student Population

	1968		1970	
	N	%	N	%
Caucasian	7,183	47.8	7,259	48.7
Negro	6,665	44.3	6,676	44.8
Oriental	1,167	7.8	950	6.4
American Indian	19	0.1	18	0.1
	15,034	100.0	14,903	100.0

Prior to desegregation, low achievement test scores were centered in those schools comprised mainly of Black or other minority group children; following desegregation, minority children were distributed among all schools in the district. A tabular summation of first grade reading achievement scores is presented below.

Number and Percent of First-Graders Scoring in Lower Quartile (Publishers Norm) on Stanford Achievement Test in Reading

Following Desegregation 1968-1969

School	Number of Pupils Tested	Number in Lower Quartile	Percent in Lower Quartile
1	138	73	53
2	85	45	53
3	87	49	56
4	152	87	57
5	107	41	38
6	86	60	70
7	66	37	56
8	171	85	50
9*	157*	132*	84*
10	134	94	70
11	40	22	55
12	37	20	54
TOTAL	1260	745	59% (745/1260)

*Washington Primary School - Project DELTA site.

The fact that minority children with low achievement scores were distributed throughout the district undoubtedly made these students more conspicuous. And this fact in turn emphasized that a number of teachers, whose competencies were previously considered adequate, found themsleves searching for new instructional approaches and organizational schemes which might be more appropriate for the "culturally different" youngster. Few, however, had the training and experience necessary to analyze the specific learning difficulties of the under achieving child and to attack those difficulties directly.

Selection of the School Site

Washington Elementary School was selected as the site for development of the DELTA teacher-training model. The choice resulted from a consideration of five factors:

(1) Washington School is totally integrated.

(2) **Because** the school was used for University of California pre-service teacher training, the impact of the program would not be only on the regular Washington School staff but on the student teachers as well.

(3) The principal and staff seemed receptive to the project and eager to help in its development and implementation.

(4) Washington School had a large basement area which could readily be converted to an on-site headquarters so that the project could function on a daily basis with the school's staff and children; i.e., the project was in the community rather than in a University setting remote from the day-to-day problems in the school.

(5) The 1968-69 reading achievement scores for the school were by far the lowest of any primary school in the district, presenting a formidable challenge to both the Washington staff and the Project DELTA staff.

Following the selection of the city and the on-site location, the research literature on reading and language development was carefully examined in order to derive implications serving as the basis for the formal program. (See Chapter IV.)

Design of the Program

The formal program was developed in accordance with two fundamental criteria: first, that components of the program be relevant to the needs of the school population (students, teachers, community); and second, that each component have potential transfer value for use in a similar urban primary school setting. The major components of the formal program consisted of (1) knowledge and information derived from other academic disciplines, (2) formulation and organization of curriculum and learning environment, and (3) performance competencies of classroom teachers. The developmental stages of Project DELTA and the formulation of the project strands will be discussed under summative data in Chapter VII.

1. Knowledge and Information Derived From Other Academic Disciplines

Three bodies of knowledge have demonstrated significant potential in enhancing decision making in reading-language instruction for the inner-city child. These deal with the description of language, the principles of learning, and social group behavior and interactions (or some combination of these areas). For example, linguistics provides an objective examination of language and the way in which language is generated and used in human interaction. It also provides an understanding of the history and development of language with its many varieties and variations. Psychology is primarily of value in identifying factors essential to providing optimal learning experiences for developing reading-language skills and processes. Sociology enables us to better understand group and individual behavior by focusing on the many elements influencing the child's interaction with his home environment, community groups, and the various individuals and groups in his school.

Cross-disciplinary study also provides important implications for language skills instruction. Sociolinguistics is particularly valuable, enabling us to understand the consistent and regular language forms (phonology, grammar, and vocabulary) used in various socio-ethnic groups. Since consistent language variations affect or might be expected to affect oral and written communication, this area deserves careful attention.

A second area, social psychology, provides insight into factors influencing personality development. In the reading-language arts, our specific concern is related to the interests, attitudes, and values held by the individual child. This field is of unique value as we attempt to understand the goals and drives of young children and the ways we can enhance motivation in reading-language instruction.

A third area, psycholinguistics, provides insight into language competence and performance, thereby leading to better understanding of language units and how these units relate to comprehension and production of language in oral and written form.

In attempting to derive and apply implications from related disciplines, a word of caution is in order: the structure described by the language scholar may differ markedly from the optimal structures actually used in the learning process by primary grade children. Therefore, one must critically examine the "fit" between the concepts and principles derived from a given discipline and the reality of individual learning behavior in the classroom. For example, knowledge of the specific characteristics differentiating Old English, Middle English, Early Modern, and Modern English may be of great value to scholars in these areas but will be of minimal value to the primary grade reading-language program.[1]

As a result of examining academic disciplines, the following areas received special emphasis in developing the training model:

1. The study of basic language concepts holding implications for understanding children's language growth and development (linguistics, psycholinguistics).

2. The study of the interrelationship between the oral language system and the written language system (linguistics).

3. The examination of syntactical elements producing distinct meaning changes within and across sentences (linguistics, psycholinguistics).

4. The study of dialect differences of significant value in reading-language instruction for teachers and children speaking standard and nonstandard English respectively (sociolinguistics).

5. The study of concept development and thinking strategies (psychology, psycholinguistics).

6. The examination of oral and written expressive forms through children's literature and through analysis of samples of children's oral and written expression (arts of expression, linguistics).

7. The study of socio-ethnic variables and school and community relationships (sociology, social psychology, sociolinguistics).

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[1] On the other hand, an understanding of the changing nature of language is of value in appreciation of regional or ethnic variations of language and the function of "slang" used by youngsters in particular social envorinments.

2. Formulation and Organization Of Curriculum and Learning Environment

In formulating instructional concepts and objectives designed to meet needs of individual students and in applying background knowledge to develop various components of the reading-language curriculum, guideline questions such as the following were used to stimulate discussion by the teachers participating in the program:

> What reading-language abilities and attitudes should be developed in the school? In a specific classroom? With a particular child?
>
> How can specific learning experiences be organized to result in maximum achievement as well as maximum positive attitudes toward a reading-language program?
>
> How can the various aspects of communication skills development be sequenced and integrated for maximum achievement and attitudinal results?
>
> What teaching methods and techniques are of greatest value in developing specified reading-language abilities and attitudes?
>
> What resources (personnel, evaluation instruments, materials) are necessary for achieving the desired results?

A major objective of Project DELTA was to encourage the Washington School staff to design optimal classroom learning conditions accounting for the "fit" between the child's background--including past learning experiences, conceptual development, learning strategies, interests, and motivations--and the proposed instructional program. Thus teachers were encouraged to examine the following concepts in relation to their classroom instruction in reading-language development.

Readiness Level

The first priority was to determine the reading-language experiences the child had encountered and how he had fared with these experiences regardless of his grade placement. This area included an assessment of the child's conceptual development (lexical meaning), his syntactical development (relational meaning), and his affective development (attitude toward reading-language learning). Also given special consideration was the child's degree of control over vocabulary and language forms unique and necessary to the classroom environment.

Motivation

If the child is to derive functional pleasure and a sense of accomplishment from oral language activities, role playing, or listening to poems or fairy tales, the teacher must develop not only the child's interest but also his persistence by helping him establish individual goals related to an activity and by providing consistent verbal encouragement. Thus the teachers were encouraged to identify the interests, attitudes, and values the inner-city child brings to the classroom and to utilize this information as persistence and drive are developed in learning activities.

Sequencing and Pacing

Some children require development of concepts in a logical step-by-step ordering with a comparatively slow rate of development whereas others have basic concepts established and can rapidly comprehend abstract relationships with little instructional development. For this reason, teachers were encouraged to adjust for these dual instructional factors on the basis of readiness level information obtained at the outset of instruction.

Responses

As the child's response was observed, teachers were encouraged to evaluate it in terms of concept integration with previous background information and in terms of how the response reflected the conceptual level of the child's thinking. Particular concern was given to evidence indicating the child's success or failure in accommodating and assimilating new concepts within his conceptual frame of reference. The teacher's ability to utilize factual, interpretive, and applicative questions in a wide range of reading-language experiences will enhance her ability to assess the child's responses.

Reinforcement and Feedback

The results of the child's learning activities are tied directly to motivation and will influence the child's persistence and success or failure in learning. Therefore, the teacher must constantly reflect on the type of feedback which he himself provides to the child. Reinforcement and praise are certainly necessary elements in motivating the child. But, on the other hand, consistently positive feedback by the teacher may suggest that the conceptual level of classroom questions and discussions needs to be raised whereas consistently negative feedback cues an inappropriate level of difficulty.

Transfer

The provision in the reading-language program for transferring concept and skill development to a new learning situation is of great importance. This can be accomplished in part as similarities and differences between concepts are examined across subject matter areas. For example, a systematic approach to problem solving may apply in the social science area as inferences about the role of family members are made. This may also be true in the science area where high-level thought processes are required in developing hypotheses about animal camouflage. However, it should be stressed again that opportunity must be present for the child to accommodate and assimilate new concepts and skills into his present conceptual hierarchy.

Social Interaction

Special concern must be given to individual and group interaction in inner-city classroom learning experiences, requiring an assessment of various individuals and groups which the child holds in either high or low esteem. Knowledge about the child and his interaction with these various groups and individuals (home, community, and school) will provide information leading to more effective communication between teacher and child. For example, some children may have had little opportunity to discuss ideas in family or peer group situations and therefore require special encouragement to contribute to group discussions. Other children may have had little experience in assuming responsibility of any kind at home and require help in establishing independent goals to function in individual learning activities. Still other youngsters may require special attention as they learn to contribute to a classroom climate--a climate providing for freedom in discussing ideas and yet effecting a degree of restraint and responsibility not only in sharing ideas with other youngsters but in a willingness to attend, examine, and respect the ideas of others.

The seven factors cited above are basic to the learning environment in the classroom whether it be reading-language instruction or any other areas of the curriculum. Outstanding teachers have undoubtedly taken these factors into account for generations. However, not all teachers begin by being outstanding; and one function of Project DELTA was to focus on these seven critical elements during lectures, workshops, seminars, and strand development.

3. Performance Competencies of Classroom Teachers

It seems apparent that if the individualized, experience-oreinted reading-language program is to be effective, the classroom teacher must possess a number of evaluative and instructional competencies. One phase of the project--in seminars and strand development--was designed to help teachers either acquire or improve upon competencies among the following areas:

1. The ability to assess language maturity in oral and written expression and to utilize the information obtained as the basis for the reading-language program. Special provision was made for developing evaluative competence by devising functional observational scales for oral and written expression. (See Chapter V.)

2. The ability to assess critical thinking skills and to use the resulting information to formulate a program for developing reading and listening comprehension skills. The training model focused on this factor by helping teachers understand (a) the formulation of the factual, interpretive, and applicative type questions, and (b) the appropriate use of questioning strategies in the reading-language curriculum.

3. The ability to assess decoding (word attack) and spelling ability and to use the resulting information in designing instructional approaches leading to indepedent decoding and spelling abilities. The training model provided for the development of generalizations accounting for letter-sound and letter pattern-sound pattern relationships, the use of structural analysis in decoding and spelling, and the use of meaning clues as an aid to decoding. Attention was also given to the sequencing of decoding skills as related to individual variation in the classroom.

4. An understanding of children's literature to (a) develop motivation, interest, self-reflection, and understanding, and (b) to account for children's interests, conceptual development, personal adjustment, and reading achievement level. Also stressed was the importance of story telling and story reading by the teacher and by youngsters in the classroom.

5. The ability to organize and administer the classroom instructional program to provide for individual achievement variations--aspects such as multi-aged grouping, homogeneous grouping, and classroom organization plans ranging from complete individualization to ability and interest grouping.

6. An understanding of child-parent and child-community interaction as related to the reading-language program, providing for improved understanding of cultural and ethnic variation within the school community. The development of school-community interaction emphasized an understanding and respect for parents and an acceptance of their involvement in school activities.

Again, the outstanding teacher would presumably possess the competencies cited above. However, the purpose of the project was to increase the performance level in the above areas for all teachers in the program.

III. GUIDE QUESTIONS AND HYPOTHESES: FORMATIVE AND SUMMATIVE DATA

The major goal of Project DELTA was the formulation of a teacher-training model leading to significant improvement in teacher performance as reflected in measurable improvements in the reading-language ability of primary grade inner-city children. However, the development and evaluation of innovative educational programs in public schools must account for a wide range of methodological problems from a research design standpoint. School district personnel often hesitate to provide necessary support in establishing adequate experimental controls; teachers are reluctant to subject children to evaluation beyond a minimal level; and parents are anxious about their children becoming "human guinea pigs" for a university-based research project. Nevertheless, if data are to become meaningful, it is essential that the researcher persist in establishing a research design which will provide a sound data base. Extensive effort was given to the research design and evaluation dimensions of Project DELTA.

Data derived from standardized tests and project-developed evaluation instruments used in the study will be referred to as formative data. A series of specific questions, related hypotheses, and exploratory questions were formulated to treat the formative data.

It was anticipated that Project DELTA would also generate valuable process information which could not be handled in a quantitative fashion because of the nature of the data and severe knowledge and instrumentation limitations imposed by "the state of the art." In Project DELTA, data of this type are found in weekly logs, audio and video-tape recordings of weekly seminars, observations of the DELTA staff working with the Washington School teachers, and observations of instruction in classrooms--to mention the more important data sources. These data will be referred to as summative data. The researchers felt that the summative data represented a vital information scource in arriving at some understanding of the process essential to the development of innovative educational programs. To guide staff observations related to process dimensions in developing the model, specific summative questions were formulated at the outset of the project.

Formative Data Questions

Drawing on the related research literature, the researchers formulated basic questions and related hypotheses. In order to more effectively interpret and apply findings relative to pupil background characteristics, each hypothesis was tested by considering the ethnic and socio-economic composition of the student population. Exploratory questions were also formulated to enable the researchers to examine data holding promise for significant research and classroom implications.

Basic Questions and Related Hypotheses

1. What gain in reading comprehension achievement could be expected for children in different ethnic and socio-economic classifications in grade one, grade two, and grade three?

> Hypothesis A: Pre-post achievement socres will differ significantly and reflect a minimum of one month's growth in reading comprehension achievement for each month of instructional time for children in various ethnic and socio-economic classifications at each grade level.
>
> Hypothesis B: Reading comprehension achievement scores for children in different ethnic and socio-economic classifications in the DELTA Treatment[1] will differ significantly from the comprehension socres for children in the Control Design Treatment for grade one, grade two, and grade three.

2. What gain in word analysis achievement could be expected for children in different ethnic and socio-economic classifications in grade one, grade two, and grade three?

> Hypothesis A: Pre-post achievement scores will differ significantly and reflect a minimum of one month's growth in word analysis achievement for each month of instructional time for children in various ethnic and socio-economic classifications at each grade level.
>
> Hypothesis B: Word analysis achievement scores for children in different ethnic and socio-economic classifications in the DELTA Treatment will differ significantly from the word analysis scores for children in the Control Design Treatment for grade one, grade two, and grade three.

3. What gain in listening comprehension achievement could be expected for children in different ethnic and socio-economic classifications in grade one, grade two, and grade three?

> Hypothesis A: Pre-post achievement socres will differ significantly and reflect a minimum of one month's growth in listening comprehension achievement for each month of instructional time for children in various ethnic and socio-economic classifications at each grade level.

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[1] Descriptions of the DELTA Treatment and the Control Design Treatment are presented in Chapter IV and VI.

Hypothesis B: Listening comprehension achievement scores for children in different ethnic and socio-economic classifications in the DELTA Treatment will differ significantly from the listening comprehension scores for children in the Control Design Treatment for grade one, grade two, and grade three.

4. What gain in reading readiness achievement could be expected for children in different ethnic and socio-economic classifications in kindergarten and grade one?

Hypothesis A: Pre-post reading readiness achievement scores will differ significantly during the instructional period for children in various ethnic and socio-economic classifications in kindergarten and in grade one.

Hypothesis B: Reading readiness achievement scores for children in different ethnic and socio-economic classifications in the DELTA Treatment will differ significantly from the readiness scores for children in the Control Design Treatment for kindergarten.

5. What achievement patterns are present for reading comprehension, word analysis, and listening comprehension achievement scores for children in different ethnic classifications in grade one, grade two, and grade three?

Hypothesis A: Achievement patterns will be identifiable by examining the relative differences among achievement scores in reading comprehension, word analysis, and listening comprehension.

Hypothesis B: Achievement patterns will be similar for the various ethnic groups studied.

6. As measured by average words per communication unit, what gain in oral language growth could be expected for children in different ethnic and socio-economic classifications?

Hypothesis A: Pre-post language growth scores for the total transcript will differ significantly for children in various ethnic and socio-economic classifications at each grade level.

Hypothesis B: Pre-post language growth scores for the multiple picture segment of the transcript will differ significantly for children in various ethnic and socio-economic classifications at grade two and grade three.

7. As measured by average words per communication unit, what gain in written language growth could be expected for children in different ethnic and socio-economic classifications?

> Hypothesis: Pre-post language growth scores for the multiple picture writing sample will differ significantly for children in various ethnic and socio-economic classifications at grade two and grade three.

8. As measured by the DELTA Oral Language Observation Scale, what gain in oral language growth could be expected for children in different ethnic and socio-economic classifications?

> Hypothesis: Pre-post language growth scores for the multiple picture segment of the transcript will differ significantly for children in various ethnic and socio-economic classifications at grade two and grade three.

9. As measured by the DELTA Written Language Observational Scale, what gain in written language growth could be expected for children in different ethnic and socio-economic classifications?

> Hypothesis: Pre-post language growth scores for the multiple picture writing sample will differ significantly for children in various ethnic and socio-economic classifications at grade two and grade three.

Exploratory Questions

1. What relationship exists between various measures of oral and written language performance?

   a. Using the total oral language transcript, what relationship exists between average words per communication unit and the Teacher Rating of classroom oral language?

   b. Using the Multiple Picture Stimulus, what relationship exists between the DELTA Oral Language Observational Scale rating and average words per communication unit for the total transcript?

   c. Using the Multiple Picture Stimulus, what relationship exists between the DELTA Oral Language Observational Scale rating and the Teacher Rating of classroom oral language?

   d. Using the Written Language Multiple Picture Stimulus, what relationship exists between average words per communication unit and the DELTA Written Language Observational Scale rating?

e. Using the Multiple Picture Stimulus, what relationship exists between the children's oral and written language performance as measured by average words per communication unit?

f. Using the Multiple Picture Stimulus, what relationship exists between the children's oral and written language performance as measured by the DELTA Oral and Written Language Observation Scales?

2. What relationship exists between ethnic classification and performance on the standard and nonstandard dialect features of the Listening Comprehension Inventory?

3. What relationship exists between ethnic classification and performance on the Phonological Spelling Inventory?

4. What relationship exists between ethnic classification and performance on the standard and nonstandard dialect features of the Language Preference Inventory?

5. What relationship exists between ethnic classification and performance on the I AM Self-Concept Assessment Instrument?

6. As identified by the DELTA Taxonomy, what questioning levels and strategies are used by teachers in classroom instruction?

a. What percentage of each questioning level (i.e., factual, interpretive) do teachers utilize in classroom instruction?

b. What percentage of each questioning strategy (e.g., focusing, raising, etc.) do teachers utilize in classroom instruction?

c. Does the percentage of each questioning strategy at the factual level differ from the percentage of each questioning strategy at the interpretive level?

d. What percentage of each response level (i.e., factual, interpretive) do teachers utilize in classroom instruction?

e. What percentage of each response strategy (e.g., focusing, raising, etc.) do teachers utilize in classroom instruction?

f. Does the percentage of each response strategy at the factual level differ from the percentage of each response strategy at the interpretive level?

g. Do teacher questioning levels and strategies appear to be related to pupil response levels and strategies?

Summative Data Questions

1. What process similarities were noted in the development and implementation of each of the five strands constituting the model?

2. What characteristics should an effective strand leader possess to aid in developing the model in the local school?

3. What teacher characteristics were observed to be most helpful and least helpful in formulating the strands and in implementing the model?

4. What skills and content should be included in an in-service education model in the local school?

5. How can the skills and content be most effectively implemented in the local school?

6. What role should parent involvement play in the development of the model?

7. What key factors should be considered in transferring strand skills and content from one group of teachers to another?

8. What values and limitations were present in moving the pre-service teacher education reading-language course from the University to the primary-school site?

IV. RELATED RESEARCH

The purpose of this research review was two-fold: first, to establish a rationale for question and hypothesis formulation; and second, to generate research-based instructional implications which would aid in formulating the content of Project DELTA.

Language Development and Reading Instruction

The acquisition of one's native language is an exceedingly complex process--a process so complex that little is known about the exact nature of this amazing phenomenon.

Among the various language acquisition theories, two have received relatively widespread acceptance in recent years. The first holds that in a more traditional sense language is acquired through an elaborate association and mediational learning process.[1] The second holds that language, as one of the specific characteristics of the human species, develops as latent structures are "triggered" physiologically" and influenced by the model language available to the child, i.e., the language of home and early schooling.[2] Convincing arguments have been developed for both points of view. However, it seems plausible that, rather than being mutually exclusive, both theories contribute to an understanding of language acquisition. Assuming that latent language structures are present and are basic to the development of language ability,[3] it follows logically that some additional value stems from consistent social reinforcement.[4] In other words, the child's environment both at home and at school will help him improve his grammatical control, expand his vocabulary, and use more complex and elaborated modes of communication.

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[1] B.F. Skinner, Verbal Behavior, New York, Appleton-Century-Crofts, 1957.

[2] Noam Chomsky, "Review of Skinner's Verbal Behavior," Language, 35 (1959, pp. 26-58; Eric Lenneberg, Biological Foundations of Language, New York, Wiley, 1967; and Courtney B. Cazden, "Environmental Assistance to the Child's Acquisition of Grammar," (unpublished doctoral dissertation), Harvard University, 1965.

[3] Philip G. Gough, "The Limitations of Imitation: The Problem of Language Acquisition," in Alexander Frazier (ed.), New Directions in Elementary English, Champaign, Illinois, National Council of Teachers of English, 1967.

[4] Cazden, op. cit.; and Vera P. John and Leo S. Goldstein, "The Social Context of Language Acquisition," Merrill-Palmer Quarterly of Behavior and Development, 10 (1964), pp. 265-274.

The control of oral language seldom presents any great problem to the middle-class urban child entering kindergarten. He has already learned to communicate effectively, using the various sentence and structural patterns typically used by adults.

Upon entering the first grade, the child's language development is usually sufficiently mature to handle most forms of discourse embodying highly complex structures. Generally he can (1) recognize and produce novel sentences, (2) discriminate between grammatical and nongrammatical sentences (e.g., the bike hit the tree vs. the hit bike the tree), (3) utilize context and intonation clues to disambiguate sentences possessing the same surface structure (e.g., they are frying chickens vs. they are frying chickens), and (4) comprehend sentences possessing different surface structures but having identical underlying meaning (e.g., the dog barked at the boy vs. the boy was barked at by the dog).

On the other hand, despite the child's fantastic progress in language motivation, substantial further growth must occur in grammar, vocabulary, and word recognition during the primary-school years if the child is to become a successful reader. In addition, there is undoubtedly a wide range of concept and vocabulary development present in a class of 25 or 30 children as well as the special problems encountered by low socio-economic Black and Chicano children who do not speak a standard English dialect.

Recent work on nonstandard dialects by researchers such as Labov[1] and Shuy[2] provides evidence that these dialects cannot be considered degenerate forms of "good English" but instead contain unique elements of vocabulary as well as a high degree of regularity in both phonology and syntax. The consistency within these dialects may be shown by three simple examples:

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[1] William Labov, "Some Sources of Reading Problems for Negro Speakers of Non-Standard English," in Alexander Frazier (ed.), New Directions in Elementary English, Champaign, Illinois, National Council of Teachers of English, 1967; and The Study of Non-Standard English, Champaign, Illinois, National Council of Teachers of English, 1969.

[2] Roger W. Shuy, "Some Language and Cultural Differences in a Theory of Reading," in Kenneth Goodman and James Fleming (eds.), Psycholinguistics and the Teaching of Reading, Newark, Delaware, International Reading Association, 1969, pp. 34-47.

(1) The child speaking a Southern Black dialect consistently drops certain l sounds, resulting in the production of homonyms with toll becoming toe and fault becoming fought.[3]

(2) The child speaking a Chicano dialect consistently has difficulty with vowel contrasts which distinguish the words bit /i/ and beat /iy/, bet /e/ and bait /ey/ and with initial consonant contrasts such as sue /s/ and zoo /z/.

(3) The Navaho child has difficulty with initial consonant distinctions in words like vote /v/ and boat /b/ and chip /c/ and gyp /j/.

Since the books used at the primary-grade level are invariably written in standard English dialect, the child speaking a different dialect has an immediate handicap. Variations in the phonolcgical system may cause confusion where sentence context is not sufficient to clarify the intended meaning. Thus, if we are to understand the relationship between the phonological system variations and the written language system, it becomes clear that we must account for variations in dialect; otherwise, the reading program makes false assumptions about the language performance of the nonstandard speaker, and the teacher may attempt to develop sound-letter correspondences which are not possible for the child until he himself has grasped the differences between his own dialect and the standard English dialect.

Classroom instruction is often a frustrating experience for the child who does not speak the standard dialect because he is frequently required to provide requested information at the formal level, i.e., at the textbook level of standard English dialect. As Bernstein has pointed out,[2] the child from the low socio-economic environment using the "restricted" code is required to use language in situations which he is neither equipped nor oriented to handle.[3]

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[1] The research sections of this monograph present finding on several newly-designed dialect instruments.

[2] Basil Bernstein, "Elaborated and Restricted Codes: Their Social Origins and Some Consequences," American Anthropologist, Volume 66, Part 2 (1964), pp. 55-69; and "Language and Social Class," British Journal of Sociology, 11 (1960), pp. 271-276.

[3] Bernstein's studies focused on differences in language between children from the white working-class and the white upper-class in England.

To formalize what has been said to this point, it would be helpful to place oral and written language forms on a continuum ranging from informal to literary. By doing so, we can examine the "fit" between the beginning reader and the forms of communication he may be required to use. These are as follows:

Functional Variety Level	Oral Language	Written Language
Informal	Home and school language.	Personal notes, letters to friends, unedited language experience stories.
Formal	Classroom lectures, public speeches.	School textbooks, edited language experience stories.
Literary	Formal papers, speech as an art form.	Literature as an art form, aesthetic dimensions of written language.

From the foregoing, two problems are immediately obvious: first, the written language material the child initially encounters in the instructional setting will in most cases be at the formal level whereas his oral language style is at the informal level; second, the child from an environment providing little opportunity for the development of style shifts (informal to formal) will be at a distinct disadvantage in approaching the printed page. For example, *hafta, gonna, hadda, oughta, hasta, and wanna* seem quite appropriate in informal conversational settings, but in written language these are converted to *have to, going to, had to, ought to, has to, and want to*. The contractions *I'll, she'll, he'll and they'll* are sometimes used by even the most polished public speakers, and yet in primary-grade texts these are almost invariably converted to their form equivalents (*I will, she will, he will, they will*).

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[1] Robert B. Ruddell, "Language Acquisition and the Reading Process," in Harry Singer and Robert B. Ruddell (eds.), *Theoretical Models and Processes of Reading*, Newark, Delaware, International Reading Association, (1970), pp. 1-19; and Ruth G. Strickland, "The Language of Elementary School Children: Its Relationship to the Language of Reading Textbooks and the Quality of Reading of Selected Children," Bloomington, Indiana, Indiana University, *Bulletin of the School of Education*, 38, No. 4 (July 1962).

The main purpose in focusing on the differences in oral and written language at the informal and formal levels is to stress the fact that the child--particularly the inner-city child speaking a nonstandard dialect--should be provided every opportunity to use and develop his oral language skills, participate in class discussions, and become attuned to different phonological systems so that he may then move ahead and become a proficient reader.[1] By now the interrelations among the language arts (high degrees of correlation among the various language arts) has been firmly established.[2] In generalized terms this means that the proficient user of oral language often proves to be the proficient reader, the proficient listener, and the proficient writer. This does not imply, however, that there is a transfer of language achievement to achievement in the content areas. For example, a child highly proficient in the use of language will not necessarily prove to be highly proficient in mathematics or science. On the other hand, if the child fails to become a good reader, he will have difficulty reading a math text just as he would have difficulty in reading and English text. Thus, although language proficiency will not necessarily transfer to other curriculum areas, the lack of language proficiency will prove to be a definite handicap.

Word Attack Skills (Decoding)

From what has been said above, it seems apparent that one of the crucial tasks of early reading instruction is discovering the nature of the correlation between printed units and their oral counterparts. Instructional approaches have emphasized to varying degrees a variety of decoding units, including careful control of "regularities" and "irregularities" in the following: (1) letter-sound correspondences, notably vowels; (2) letter pattern-sound pattern units, related to an intermediate level unit known an the morphophoneme; and (3) a phonologically-based unit known as the vocalic-center group, closely approximating the syllable (and in certain instances the smallest significant meaningful language unit or morpheme).

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[1] Robert B. Ruddell and Arthur C. Williams, Reading Achievement in California: Miracle or Mirage? Testimony prepared for the California Assembly Committee on Education, October 1, 1970.

[2] Gertrude Hildreth, "Interrelationships Among the Language Arts," Elementary School Journal, 48 (June 1948), pp. 538-549; Sterl A. Artley, "Research Concerning Interrelationships Among the Language Arts," Elementary English 27 (December 1950), pp. 527-537, Mildred A. Dawson, "Interrelationships Between Speech and Other Language Arts Areas," Elementary English 31 (April 1954), pp. 223-233; Dorothea A. McCarthy, "Language Development in Children," in L. Carmichael (ed.), Manual of Child Psychology, New York, Wiley (1954), pp. 492-630; and Robert B. Ruddell, "Oral Language and the Development of Other Language Skills," Elementary English (May 1966), pp. 489-498, 517.

At some point, most reading programs emphasize one or more of these various units although the exact structure and sequencing of these units may not always be obvious. In any event, decoding skills have been taught successfully by placing special emphasis on either one or a combination of these units.

This latter statement is possibly a bit too positive. And if we wished to be slightly facetious, we could suggest that children learn to read either because of or in spite of a given instructional approach used in the classroom. Nevertheless, the key question pertaining to decoding is simply this: What research evidence is available to support a particular perceptual unit or units, indicating that use of the method leads to decoding skill development in reading instruction?

1. Letter-Sound Correspondences

The recommendation that words be introduced initially on the basis of grouped letter-sound (grapheme-phoneme) consistencies has been proposed by a number of educators.[1] Each of these individuals has expressed the opinion that the inconsistencies of English spelling place a limitation on the acquisition of sound-symbol correspondences as presently developed in widely used reading texts.

Research studies have not been consistent in varying the degree of emphasis on sound-symbol correspondences and related generalizations. However, several studies done in the late 1950's revealed superior results for phonic emphasis at early grade levels, particularly in word recognition.[2] More recent studies have lent support to the value of greater consistency in the introduction of sound-letter correspondces.[1] Additionally, the consistent replication of research findings discussed by Chall also supports the logical expectation that it would be of value to use an approach to decoding which helps the child grasp the nature of the English writing code.[2]

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[1] L. Bloomfield, *Language*, New York, Holt, Rinehart and Winston, 1933; J.P. Soffietti, "Why Children Fail to Read: A Linguistic Analysis," *Harvard Educational Review*, 25 (Spring 1955), pp. 63-84; H. L. Smith, Jr., *Linguistic Science and the Teaching of English*, Cambridge, Harvard University Press, 1959; R. A. Hall, *Sound and Spelling in English*, Philadelphia, Chilton Books, 1961; and C. C. Fries, *Linguistics and Reading*, New York, Holt, Rinehart and Winston, 1963.

[2] D. E. Bear, "Phonics for First Grade: A Comparison of Two Methods," *Elementary School Journal*, 59 (1958), pp. 394-402; Barbara Cline Kelly, "The Economy Method Versus the Scott, Foresman Method in Teaching Second Grade Reading in the Murphysboro Public Schools," *Journal of Educational Research*, 51 (1958), pp. 465-469; and Paul E. Sparks and L. C. Fay, "An Evaluation of Two Methods of Teaching Reading," *Elementary School Journal*, 57 (April 1957), pp. 386-390.

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[1] R.B. Hayes, "ITA and Three Other Approaches to Reading in First Grade," Reading Teacher, 19 (May 1966), pp. 627-630; Robert B. Ruddell, "The Effect of Four Programs of Reading Instruction with Varying Emphasis on the Regularity of Grapheme-Phoneme Correspondences with the Relationship of Language Structure to Meaning on Achievement in First Grade Reading: A First Progress Report," in Kenneth Goodman (ed.), Psycholinguistic Nature of the Reading Process, Detroit, Wayne State University Press, 1967; Robert B. Ruddell, "Reading Instruction in First Grade with Varying Emphasis on the Regularity of Grapheme-Phoneme Correspondences and the Relation of Language Structure to Meaning," Reading Teacher, 19 (May 1966), pp. 653-660; Robert B. Ruddell, Second And Third Year Year of a Longitudinal Study of Four Programs of Reading Instruction with Varying Emphasis on the Regularity of Grapheme-Phoneme Correspondences and the Relation of Language Structure To Meaning, U.S. Department of Health, Education and Welfare, Office Of Education Cooperative Research Projects No. 3099 and 78085, 1968; H.T. Hahn, "Three Approaches to Beginning Reading Instruction," Reading Teacher, 19 (May 1966), pp. 590-594; H. J. Tanyzer and H. Alpert, "Three Different Basal Reading Systems and First Grade Reading Achievement," Reading Teacher, 19 (May 1966), pp. 636-642; A. J. Mazurkiewicz, "ITA and TO Reading Achievement When Methodology is Controlled, "Reading Teacher, 19 (May 1966), pp. 606-610; and J.A. Downing, "The I.T.A. (Initial Teaching Alphabet) Reading Experiment," Reading Teacher, 18 (November 1965), pp. 105-110.

[2] Jeanne S. Chall, Learning to Read: The Great Debate, New York, McGraw-Hill, 1967.

From the standpoint of information transfer, one study emphasizes the value of sound-letter correspondence units. In this research pseudo-letters were designed to represent English sounds and kindergarten subjects were taught to decode on the basis of sound-letter correspondences and on the basis of "whole words." The findings indicated that subjects taught by the first method were more effective in transferring their skills to "new words" than were those subjects taught by the second method. The emphasis on individual correspondences appears to provide a lower error rate and more effective decoding skill than does attention to word identification based on single features.[1]

In a later study the same researchers replicated aspects of the study cited above with similar findings; however, they attributed their results in part to one aspect of the experimental treatment which taught the subjects to blend sounds represented by the pseudo-letters into words.[2] These findings are similar to those of another study in that subjects were unable to transfer correspondence information to new words unless they had received phonic-blend instruction.[3] The findings suggest that sound-blending places the sounds in a natural sound-unit context, constituting a more elaborated decoding unit which is of value in transferring sound-letter correspondence information to new letter patterns and words.

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[1] S.J. Samuels and W. E. Jeffrey, "Discriminability of Words and Letter Cues Used in Learning to Read," Journal of Educational Psychology, 57, No. 6 (1966), pp. 337-340.

[2] W. E. Jeffrey and S. J. Samuels, "Effect of Method of Reading Training on Initial Learning and Transfer," Journal of Verbal Learning and Verbal Behavior, 7, No. 3 (1967), pp. 354-358.

[3] H. F. Silberman, Exploratory Research on a Beginning Reading Program, Technical Memorandum, No. TM-895/100/00, Santa Monica, System Development Corporation, 1964.

2. Letter Pattern-Sound Pattern Correspondences

If a decoding program is to account for the nature of the English *writing* system, one must consider spelling units or letter patterns which provide for prediction of sound correspondences beyond the letter-*sound* correspondence level. Three researchers have analyzed this problem with reference to the morphophoneme.[1] This unit represents an intermediate unit between the phoneme and morpheme and may be thought of as a sound-spelling pattern unit or morphophonemic-morphographemic system. For example, in considering the words extr*e*me and extr*e*mity, one might point to the second *e* and state that there is no regularity between the *e* and the *sound* of the *e*. However, when one considers these two words on the morphophonemic level, a very regular pattern is immediately obvious. In the alternation extr*e*me-extr*e*mity, obsc*e*ne-obsc*e*nity, supr*e*me-supr*e*mity, one observes a *consistent* shift in the sound value (/iy/ to /i/) with the addition of the suffix *-ity*. Although some reading programs have developed a few alterations such as that found in the final *e* marker (*sit* /i/; *site* /ay/), very little consideration has been given to the application of detailed study and research in this area.

Venezky has also emphasized that a distinction needs to be made between spelling-sound patterns based on the *spelling* system and those based on *phonological habits*.[2] In the first case, children probably need to be taught the generalization that the letter *c* represents /s/ when followed by *e*, *i*, or *y* (city, /sitiy/) and otherwise represents /k/ (cat,/kæt/) However, the generalization that final consonant *s* is pronounced as /z/ following voiced sounds (dog*s* /z/, and as /əz/ after /s, z, š, ž, č, ǰ/) (buzze*s* /əz/) and as /s/ in all other contexts (hop*s* /s/) is phonological in nature. For this reason the native speaker will automatically produce this change and there is little need to teach it.[3]

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[1] R. F. Venezky, "English Orthography: Its Graphical Structure and Its Relation to Sound," *Reading Research Quarterly*, 2 (Spring 1967), pp. 75-106; R. Wardaugh, "Linguistics-Reading Dialogue," *Reading Teacher*, 21 (February 1968), pp. 432-441; and D. W. Reed, "A Theory Of Language, Speech and Writing," in Priscilla Tyler (ed.), *Linguistics and Reading*, Highlights of the 1965 Preconvention Institutes, Newark, Delaware, International Reading Association (1966), pp. 4-25.

[2] Venezky, *op. cit*.

[3] A child speaking a Southern Black dialect frequently drops many ending sounds from certain words. However, this appears to be a problem different from the one discussed.

From the foregoing it seems apparent that an intensive research effort is needed to examine the value of morphophonemic generalizations for reading instruction. One basic question might explore the possible advantage of simultaneous introduction of contrasting letter patterns representing different but consistent vowel values (hat, hate) in contrast to sequencing letter-sound correspondences on the basis of "consistent" vowel correspondences (bat, mat). One study, limited in scope, has demonstrated the possible value of establishing a "set for diversity" in decoding and lends some support to the former consideration.[2]

3. Vocalic-Center Group and Morpheme

Two educators have suggested that a linguistic unit identified as the vocalic-center group provides for high transfer value in decoding.[2] This unit, defined as "a vowel nucleus preceding and following consonants," is phonologically rather than semantically based. In most cases, however, this unit would parallel that of the syllable as defined by the lexicographer. The rationale for considering such a unit is that phonological segmentation is of greater significance than morphological segmentation for the early reader. One study has reported an experiment in which children were asked to repeat disyllabic words (toas-ter) and bimorphemic words (toast-er) after the investigator. Their errors were found to favor redivision along the syllabic or phonological rather than along morphological breaks.[3] It should be indicated, however, that many words classified along phonological boundaries (quick-ly) will also be classified in an identical fashion along morphological boundaries (quick-ly).

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[1] H. Levine and J. Watson, "The Learning Variable Grapheme-to-Phoneme Correspondences," A Basic Research Program on Reading, Ithaca, New York, Cornell University, Cooperative Research Project No. 639, 1963.

[2] D. N. Hansen and T.S. Rogers, "Exploration of Psycholinguistic Units in Initial Reading," in Kenneth Goodman (ed.), The Psycholinguistic Nature of the Reading Process, Detroit, Wayne State University Press, (1968), pp. 59-102.

[3] T. S. Rodgers, "Linguistic Considerations in the Design of the Stanford Computer Based Curriculum in Initial Reading," Institute For Mathematical Studies in the Social Sciences, Technical Report No. 111, USOE Grant Number OE5-10-050, 1967.

Other research, exploring the presence of a higher-order unit formed by letter-sound correspondences,[1] has demonstrated that children in the early stages of reading have developed higher-order generalizations which provide for decoding pseudo-linguistic letter patterns following English spelling expectancies. The children appeared to perceive regularities in sound-letter correspondences and transfer these to decoding unfamiliar trigrams even though taught by what the researchers refer to as the "whole word" approach.

Along these same lines, additional work by Gibson has demonstrated that adult subjects perceive pseudo-linguistic trigrams more easily when following English spelling generalizations or pronounceable units (BIF) than when these units are less pronounceable (IBF) or more meaningful (FBI).[2] Because the task of the reader is that of decoding written letter patterns and transferring these into oral counterparts, pronounceable letter combinations would seem to be of significant value. On the other hand, meaningful trigrams, such as FBI, require the reader to work with three units rather than one. Nevertheless, it was noted that the latter type of trigram was more easily recalled than the pronounceable unit. The ease in recall of meaningful units was attributed to the storage capacity of the mind and the fact that it is simpler to recall meaningful units than units with no meaning. Even pronounceable trigram syllables would call for an almost infinite number of categories and would therefore be difficult for the mind to retrieve. On the other hand, the researchers concluded that pronounceability was the better grouping principle for reading--this conclusion supporting the validity of the previously discussed vocalic-center group (and in certain instances the corresponding morpheme).

The foregoing discussion has considered several methods of decoding and their value for developing decoding skills. At first glance, the methods appear to be mutually exclusive; this is not the case, however, when the methods are operationalized in the actual instructional program. The great majority of linguistically influenced programs attempting to control for sound-letter correspondences do not teach correspondences in isolation. Instead, such programs use a combination of initial consonant substitution, final consonant substitution, and vowel substitution contrasts. For example, the matrix below accounts for emphasis on initial consonants m/m/ and h/h/ in context, medial vowels a/æ/ and i/i/ in context, and morphophonemic pattern contrast with a vowel shift from /æ/ to /ey/ and utilizes the vocalic-center groups and corresponding mophemes.

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[1] Eleanor J. Gibson, et. al., "The Role of Grapheme-Phoneme Correspondences In Perception of Words," American Journal of Psychology, 75 (1962), pp. 554-570; and Eleanor J. Gibson, H. Osser, and Anne D. Pick, "A Study Of the Development Grapheme-Phoneme Correspondences," A Basic Research Program on Reading, Ithaca, New York, Cornell University, Cooperative Research Project No. 639, 1963.

[2] Eleanor J. Gibson, et. al.,"A Comparison of Meaningfulness and Pronounceability as Grouping Principles in the Perception and Retention Of Verbal Material," A Basic Research Program on Reading, Ithaca, New York, Cornell University, Cooperative Research Project No. 639, 1963.

Commonalities in Decoding Units

	-at	-ate	-it
m-	mat	mate	mit
h-	hat	hate	hit

The example above greatly oversimplifies the discussion, but at the same time it illustrates the possible operational economy in teaching various methods of decoding. Thus one may view the decoding process as establishing an understanding of the relationship between letter-sound correspondences forming the larger letter pattern-sound pattern units. In operational form, these can then formulate the pronunciation of the vocalic-center group and, in some instances, the corresponding morpheme.

Comprehension

Examining the area of comprehension, will be simplified by discussing five separate components: (1) vocabulary and concept development, (2) relational meaning--surface structure, (3) relational meaning--deep structure, (4) lexical meaning, and (5)short-term and long-term memory.

1. Vocabulary and Concept Development

During pre-school years the child's conceptual development progresses rapidly, and by his first year in school he will recognize and distinguish between many hundreds of words. During this time a variety of concepts are formulated as the youngster associates an object's common *properties* with the object's *label*. As Vygotsky has pointed out, the *pre-school* child distinguishes between a *cow* and *calf* on the basis that a cow has horns and a calf has horns which are still *small*, whereas a *dog* is called a *dog* because it is small and has no horns.[1] Eventually the child comes to conceptualize the arbitrary nature of language itself as he understands that word labels are assigned to concepts and that a particular label may represent several concepts depending upon its context.

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[1] Lev S. Vygotsky, *Thought and Language*, Camrbidge and New York, M.I.T. Press, 1962.

There is ample evidence to support the view that concepts develop along a continuum from concrete through semi-concrete or functional to abstract levels.[1] The work of Russell and Saadeh is also illustrative of research supporting such a continuum.[2] These researchers contrasted student conceptual responses at grades three, six, and nine on multiple-choice questions designed to measure various levels of abstraction. They concluded that third-grade children favored "concrete" responses whereas sixth-grade and ninth-grade children favored "functional" and "abstract" responses. As Ervin-Tripp has emphasized in her extensive research summary of children's language, conceptual maturation moves from concrete referents to "hierarchies of superordinates which may have rather vague features (e.g., mammal, vertebrate) and they (adults) speak of nonvisible referents such as politics and energy."[3]

Variables within the individual child's background have also been credited with enhancing his vocabulary and concept development. One study on verbal mediation indicates that a child's verbal interaction with a mature speaker is important in providing for testing tentative notions about word meanings, with the opportunity to do so appearing to produce greater verbal control and to enable the child to rely on words as mediators facilitating thought.[4] Along these same lines,

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[1] H. Feifel and I. B. Lorge, "Qualitative Differences in the Vocabulary Responses of Children," Journal of Educational Psychology, 41 (1950), pp. 1-18.

[2] David H. Russell and I. Q. Saadeh, "Qualitative Levels in Children's Vocabularies," Journal of Educational Psychology, 53 (1962), pp. 170-174; and I. Q. Saadeh, "An Evaluation of the Effectiveness of Teaching for Critical Thinking in the Sixth Grade," (unpublished doctoral dissertation), University of California, Berkeley, 1962.

[3] Susan Ervin-Tripp, "Language Development," Review of Child Development Research, New York, Russell Sage Foundation (1967), pp. 55-105.

[4] Vera P. John and Leo S. Goldstein, "The Social Context of Language Acquisition," Merrill-Palmer Quarterly of Behavior and Development, 10 (1964), pp. 265-274.

Vygotsky has also suggested that the availability of adults for dialogue with the child is of great import to language acquisition.[1] This consideration receives additional support from an early research study revealing that in families with only a single child, language facility was developed more rapidly than in families having children with siblings; also children with siblings were found to develop language facility faster than twins.[2]

Milner's investigation also emphasized the effect of factors in the home environment on language achievement.[3] Following the selection of high and low achievers in first-grade reading, a depth interview was carried out to explore the children's use of language in the home. Milner found that the high achieving children had an enriched verbal environment: more books were available and the children were read to more often by highly esteemed adults than were the low achieving children. The high scoring children also engaged in conversation with their parents more often than did the low scoring children. Milner also noted that in many home environments of low scoring children a positive family atmosphere was not evident nor did the children have a pattern established for relationships with adults. There appeared to be little opportunity for these children to interact verbally with adults who possessed adequate speech patterns and who were highly esteemed by the children.

In regard to the inner-city child speaking a nonstandard dialect, his language problems may evolve from a limited vocabulary as well as from his limited ability to shift from an informal style (developed in situations oriented toward immediate and concrete needs) to a formal style (characterized by abstractions carrying highly efficient explanatory power). Certainly a limited vocabulary represents a critical factor in reading comprehension. This problem is highlighted in Metfessel's finding that second-grade children from concept-deprived backgrounds possessed a comprehension vocabulary only one-third the magnitude of the average of their age-equivalent peers.[4] Therefore, the classroom teacher must take this into account if the wide range of conceptual variations in her classroom is to be assessed and overcome by instructional means.

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[1] Vygotsky, op. cit.

[2] Edith A. Davis, The Development of Linguistic Skill in Twins, Singletons with Siblings, and Only Children from Ages Five to Ten Years, Minneapolis, University of Minnesota Press, 1937.

[3] Esther Milner, "A Study of the Relationship Between Reading Readiness in Grade One School Children and Patterns of Parent-Child Interaction," The 62nd Yearbook of the National Society for Study of Education, Chicago, University of Chicago Press, (1963), pp. 108-143.

[4] Newton S. Metfessel, J. L. Frost and G.R. Hawkes (eds.), The Disadvantaged Child, New York, Houghton-Mifflin , 1966.

2. Relational Meaning--Surface Structure

Recent psycholinguistic research has sought to explore the psychological reality of surface structure constituents--the way language patterns tend to "chunk" into syntactic categories. Glanzer has shown that pseudo-syllable--word--pseudo-syllable patterns are more easily learned when the connecting word is a function word (of, and, because, etc.) than when it is a content word (store, car, food).[1] For example, it would be easier to learn the phrase zag because zig than zag car zig; the first phrase apparently is a more natural word group and thus more easily processed.

A study dealing with paired associate learning tasks has shown that adult subjects make a larger number of recall errors between phrases (The valiant canary...ate the mangy cat.) than within phrases (The... valiant...canary).[2] This finding suggests that phrases may operate as psychologically real units. The experiment of Fodor and Bever also supports this contention.[3] In their investigation a clicking noise of brief duration was made as a sentence was read. Regardless of the placement of the click (during a word occurring immediately before or after a phrase boundary), the subjects indicated that the click occurred at the phrase boundary. Thus their conclusion supports the viewpoint that perceptual units correspond to sentence constituents as designated by the linguist.

3. Relational Meaning--Deep Structure

Transformational theory indicates that sentences are processed from the surface structure level to an underlying or deep structure for comprehension purposes. This deep structure is then realized through a transformational process which in turn is integrated with the semantic component to convey meaning.

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[1] M. Glanzer, "Grammatical Category: A Rote Learning and Word Association Analysis," Journal of Verbal Learning and Verbal Behavior, 1 (1962), pp. 31-41.

[2] N. F. Johnson, "The Psychological Reality of Phrase-Structure Rules," Journal of Verbal Learning and Verbal Behavior, 4 (1965), pp. 469-475.

[3] J. A. Fodor and T. G. Bever, "The Psychological Reality of Linguistic Segments," Journal of Verbal Learning and Verbal Behavior, 4 (1965), pp. 414-420.

One researcher has demonstrated that when subjects are asked to transform sentences from one form into another (active affirmative to passive or active affirmative to passive negative), a positive relationship is present between transformation time and the complexity of the transformation.[1] This finding supports the contention that transformations possess psychological reality in that the greater the number of transformations the greater the distance between the surface and deep structure of a sentence.

A second researcher has demonstrated that after subjects have been asked to memorize a series of complex sentences varying in grammatical type, they tend to recall the sentence but in a simpler grammatical form.[2] For example, a sentence in the passive may be recalled in its active form. These findings suggest that although a recoding of the sentence has occurred and the semantic form is maintained, the deep syntactic marker indicating the passive form has been forgotten.

The role of transformations in sentence comprehension has also been demonstrated in the research of Gough[3] and Slobin.[4] These researchers have shown that sentence comprehension varies in increasing difficulty (speed in determining truth value of sentence) in the following order: active affirmative, passive, negative, and passive negative. Thus, the available evidence supports the concept of deep sentence structure.

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[1] G. A. Miller, "Some Psychological Studies of Grammar," American Psychologist, 17 (1962), pp. 748-762.

[2] J. Mehler, "Some Effects of Grammatical Transformation on the Recall of English Sentences," Journal of Verbal Learning and Verbal Behavior, 2 (1963), pp. 346-351.

[3] P. G. Gough, "Grammatical Transformations and Speed of Understanding," Journal of Verbal Learning and Verbal Behavior, 4 (1965), pp. 107-111.

[4] D. I. Slobin, "Grammatical Transformations and Sentence Comprehension in Childhood and Adulthood," Journal of Verbal Learning and Verbal Behavior, 5 (1966), pp. 219-227.

4. Lexical Meaning

In concentrating on surface and deep structure, little emphasis has been placed on the role of lexical meaning. Some evidence is present in the previously discussed work of Gough and Slobin to suggest the importance of this language component. For example, passive sentences were comprehended with greater ease than negative sentences even though the former are thought to be syntactically more complex. This unexpected finding may be attributed in part to the semantic difference between the passive and negative and to the semantic similarity between the passive and active. In instances requiring a true or false determination, negative sentences seem to be difficult to comprehend. Slobin has emphasized that not only is syntax important in comprehending sentences but semantic considerations must also be accounted for. His research has shown that the difference in difficulty between active and passive can largely be eliminated by clarifying the role of nouns in the subject and object positions; this clarification can be accomplished by reducing the possibility of semantic reversibility.

Reversible:	The girl struck the boy--the boy struck the girl.
	The boy was struck by the girl--the girl was struck by the boy.
Nonreversible:	The boy picked the apple.
	The apple was picked by the boy.

Slobin's findings therefore suggest that much more than relational meaning is involved in sentence understanding.

Contextual constraint serves to narrow the possible range of appropriate words. For example, the word that not only cues a noun which follows but may also clarify or emphasize the semantic nature of the noun. (That motorcycle was in our yard vs. Some motorcycle was in our yard.) Miller demonstrated that words in context following a similar grammatical pattern are perceived more accurately than are words in isolation.[1] Additional support for the importance of context in narrowing semantic possibilities is found in Goodman's research which indicates that although children may be unable to decode words in isolation, they deal successfully with the same words in a running context.[2]

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[1] Miller, op. cit.

[2] K. S. Goodman, "A Linguistic Study of Cues and Miscues in Reading," Elementary English, 42 (1965), pp. 639-643; and "Words and Morphemes In Reading," in K. Goodman and J. Fleming (eds.), Psycholinguistics and The Teaching of Reading, Newark, Delaware, International Reading Association, (1969), pp. 25-33.

Research by Ruddell has shown that reading comprehension of fourth-grade children is significantly higher on passages utilizing basic high-frequency patterns of their oral language structure in contrast to passages using low-frequency and more elaborated construction.[1] These findings support the importance of contextual associations which provide sufficient delimiting information to enable a child to determine the semantic role of a word and to recognize and comprehend it in the sentence.

5. Short-Term and Long-Term Memory

When considering differences between surface structure and deep structure in regard to processing language, the importance of memory is also significant. Miller and Chomsky have proposed that a short-term and long-term memory are operative in language processing.[2] They have also formulated the concept that the limited short-term memory deals with the less complex surface structure of sentences whereas the long-term memory handles the more involved, deep structure of sentences.

In a separate study (discussed previously), Miller demonstrated that subjects have great difficulty in processing sentences containing self-embedded structures (The rat that the cat that the dog worried killed ate the malt.) in contrast to right-recursive sentences (This is the dog that worried the cat that killed the rat that ate the malt.). Because the deep structure of these sentences is identical, Miller attributes this variation in difficulty to the heavy demand placed on the short-term memory by the surface structure of self-embedded sentence.[3]

Because of the limited short-term memory, it seems logical that a deep language structure and a long-term memory component are essential for processing information over a running discourse. Mehler's work actually supports this view in that subjects were presented with complex sentences but recalled the sentences in simpler form.[4] Apparently, after a sentence is processed in the deep structure, the underlying meaning is retained with little regard for retaining the structure itself. It would also appear that the deep underlying structure is basic to comprehending sentences.

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[1] Robert B. Ruddell, "Effect of the Similarity of Oral and Written Patterns of Language Structure on Reading Comprehension," Elementary English, 42 (April 1965), pp. 402-410.

[2] Miller and Chomsky, op. cit.

[3] Miller, op. cit., "Some Psychological Studies of Grammar."

[4] Mehler, op. cit.

Affective and Cognitive Strategies

1. Affective Strategies--Motivating the Child

Certainly, anyone who has ever been in contact with small children is well aware of the child's almost overwhelming eagerness to learn.

...Why does the light go on when I snap the switch?

...Why does the water come out of the faucet?

...Teach me to tie my shoes.

...Show me a picture of the bear.

...Why does Grandma's voice come out of the telephone
when I can't even see her?

In fact, to many adults the child's constant questions become a frustration because the child is so eager to learn he monopolizes much of an adult's time.

When we turn to the area of beginning reading instruction, it seems quite obvious that our main focal point should be to capitalize on the child's inherent desire to learn. In other words, learning to read should be a process of enjoyment to the child rather than an onerous task he must undertake if he wishes to obtain a white-collar position in our society. As Gibson points out:

> It seems as though we often manage in the school to kill this active urge to seek information. Everything should be done to build on it rather than extinguish it with boredom, confusion or failure to provide the appropriate kind of reinforcement.[1]

On the question of reinforcement, Gibson goes on to state:

> . . . . . .reinforcement in procedures for teaching reading can be internal. Reading should be a consummatory activity that functions as its own incentive and reward because of the appeal of the information to be picked up . . . Reduction of uncertainty is a potent internal reinforcer. Finding an answer to a practical question can do this, and can be introduced immediately if the child's first two words are just 'yes' and 'no.' I shall

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[1] Eleanor J. Gibson, "A Working Paper Summarizing Theory-Based Research On Reading and Its Implications for Instruction," (mimeographed manuscript), Ithaca, New York, Cornell University, 1970.

not go into the function of external reinforcement (praise, monetary rewards, etc.). They have been used with (reportedly) a certain amount of success with retarded, disadvantaged readers. Their function appears to be simply keeping the child at the task and has no relevance to learning as such. In an ideal instructional setting, we ought never to have to resort to such artificial devices.[1]

Another point of emphasis relates to parental pressure and the child's reading achievement. From past research efforts the authors are well aware of the tremendous parental pressures sometimes placed on children at an early age. The parental desire for the child's success, as measured by a standardized test or the child's inclusion in a high-potential program, often produces in the child an emotional stress totally out of proportion to the value of having the child read an additional six months above his expected age-grade norm. If we approach the problem realistically, we should not expect each child to proceed at the same pace or achieve the same degree of success. Inherent differences in ability will undoubtedly be present in children just as they are in adults. For example, one does not expect the average man to run a mile in under four minutes any more than one expects him to sit down quietly at his desk and write a novel of the calibre of War and Peace. Thus the main point in beginning reading instruction is to mobilize the child's interests, attitudes, and values, to reinforce these in the instructional setting, and to make available to him the physical resources which will help him enjoy the act of learning to read.

Research in this area indicates that a system of communication must in some manner account for the individual's interests, attitudes, and values which become operationalized as his objectives and goals. As the individual confronts a task, his motivation as reflected in persistence and drive is extremely important. This viewpoint is supported by Durkin's findings that the pre-school reader is a child who is serious and persistent, possesses the ability to concentrate, and is of a curious nature.[2] In a study of achieving and nonachieving elementary-school readers, Kress has reported that the former group demonstrated more initiative in exhausting solutions and was found to persist in problem solving under changing conditions.[1] The research of Piekarz has indicated that the high-level reader, in contrast to the poor reader, provides significantly more responses in interpreting a reading passage, a trait indicating greater involvement and participation in the learning process.[2] Thus, the affective mobilizers, operationalized as the objectives and goals of the individual, not only influence the processing of language but also in large measure determine whether or not the child will be a successful reader.

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[1] Ibid.

[2] Dolores Durkin, "The Achievement of Preschool Readers: Two Longitudinal Studies," Reading Research Quarterly, 1 (Summer 1966), pp. 5-36; and "Children Who Learn to Read Before Grade One," Reading Teacher, 14 (January 1961), pp. 163-166.

2. Cognitive Strategies

As the child participates in the act of communication, he is constantly required to perceive and organize experiences. He must develop a symobl-processing system providing for conceptualization of experience. Bruner has shown that a cognitive strategy is of basic importance to the conceptualization process.[3] Kress concluded from a concept formation study of elementary-school children that achieving readers were superior to nonachievers in versatility and flexibility, ability to draw inferences from relevant clues, and ability to shift set when new standards were introduced.[4] From an extensive review of research on conceptualization, Singer concluded that an important dimension in comprehending language consists of changing, modifying, and reorganizing a previously formed concept.[5]

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[1] R. A. Kress, "An Investigation of the Relationship Between Concept Formation and Achievement in Reading," (unpublished doctoral dissertation), Temple University, 1955.

[2] Josephine A. Piekarz, "Getting Meaning from Reading," Elementary School Journal, 56 (1956), pp. 303-309.

[3] J. Bruner, J. Goodnow, and G. Austin, A Study of Thinking, New York, Wiley, 1956.

[4] Kress, op. cit.

[5] Harry Singer, "Conceptualization in Learning to Read: New Frontiers In College-Adult Reading," in G.B. Schick and M. M. May (eds.), The 15th Yearbook of the National Reading Conference, Milwaukee (1966), pp. 116-122.

The child's cognitive strategy is a constant process of evaluating the adequacy of information--of data gathering, hypothesis building, organizing and synthesizing data, and hypothesis testing. Additionally, the utilization of these factors must be guided by a constant awareness of the need to shift one's strategy to account for other approaches to solving problems.

Recommendations for Instruction Based on Related Research

The following recommendations were formulated to serve as the basis for developing innovative instructional dimensions of Project DELTA. It should be noted, however, that the reading-language oriented research discussed often focuses on narrow fields of exploration which tend to provide limited information. Thus the critical reservoir of knowledge required to formulate the ideal reading-language curriculum does not exist. Even so, substantial progress has been made in recent years in providing information on the nature of language and reading instruction. It was believed essential that this effort be critically examined for instructional implications. The following recommendations are therefore based on the preceeding review of research. Special emphasis has been given to the practical application of the recommendations as related to classroom instruction.

1. The teacher of basic language skills must be aware of the wide range in language development present in most urban primary-school classrooms. Among the factors the teacher should consider are (1) the degree of language interaction between the parents and the child, (2) the value placed by the home on the importance of language activities, (3) the dialect differences between home and school, and (4) individual pupil characteristics such as poor eyesight or hearing, emotional stress, immaturity as compared to peer groups, and degree of intellectual development.

2. A child's language is greatly influenced by the models presented in his environmental settings. Although the early home environment plays a major role in the child's language development, the language model presented by the teacher and by other children in the classroom should exert a positive influence on any given child's language development in the classroom setting. Use of a tape recorder should be considered for individual or group listening activities in presenting appropriate and contrasting language models to the children. Oral language enrichment activities--such as role playing, storytelling, and group discussions of direct experiences--deserve strong emphasis, particularly with children from culturally different backgrounds. In this manner a language base can be established for the development of reading and writing skills.

3. Particular emphasis should be focused on problems of the inner-city child speaking a nonstandard dialect. Attention should be given to the nature of written language material used in early reading instruction and the degree of fit between this material and the child's oral language style (e.g., informal, formal). Emphasis should be placed on the development of style shift through oral language activities such as role playing using puppets. Attention should also be devoted to representing the child's oral language in written form with very little teacher editing so that the child comes to understand the relationship between speech and writing as a basis for reading instruction.

A number of linguists and language educators agree that the nonstandard speaker should add to his repertoire the so-called prestige dialect, i.e., the dialect used by national network newscasters. However, there is great danger in "over-correcting" a child at too early an age and thereby inhibiting his growth and development in the use of oral language. Perhaps the upper intermediate or junior high school level is the most appropriate time to introduce some emphasis on standard dialect--introduced in a positive way rather than with the mistaken idea that a nonstandard dialect is inherently a poorer form of English than is the prestige dialect. By using examples dealing with geographical variations in language followed by an emphasis on social variations, the teacher could develop a positive attitude toward dialect differences and avoid a negative, correcting attitude.

4. In decoding, sound-blending should be placed in a natural sound-unit context constituting a more elaborated decoding unit which is of value in transferring sound-letter correspondence information to new letter patterns and words.

5. The decoding process should be viewed as establishing an understanding of the relationship between letter-sound correspondences, in turn forming the larger letter pattern and sound pattern units which, in operational form, can formulate the pronunciation of the vocalic-center group, and in some instances, the corresponding morpheme. Thus the teacher should be aware of the various decoding units and attempt to develop a corresponding fit between a youngster's learning style and the appropriate unit or units.

6. The research indicating that phrases are psychologically real units supports the viewpoint that words are more effectively decoded and understood in context. The classroom teacher should therefore be aware of the importance of introducing new vocabulary in context--from the standpoint of decoding and clarifying word meaning.

7. Careful consideration should be given to the child's concept development in relation to his direct experiences. The child must have a firm grasp of the concept he is attempting to comprehend or express in oral or written form if his communication attempt is to be successful. The teacher should try to develop and expand concepts by providing concrete experiences in the classroom and on field trips and by showing children how words convey different meanings in a variety of oral and written sentence contexts.

8. The teacher should focus on language difficulties impairing children's reading and listening comprehension and clarity of oral and written expression. Vocabulary enrichment and the development of functional utilization of movables and subordinating elements in improving sentence meaning may require special emphasis. Consideration should be given to the following types of structural meaning changes: (1) word substitution (Jennifer kicked the ball. Jennifer kicked the desk); (2) expansion of patterns (Marty had a bicycle. Yesterday, Marty had a blue bicycle. Yesterday my brother Marty had a blue bicycle, but this morning he painted it red.); (3) inversion of sentence elements (Jake hit the curve ball. The curve ball hit Jake.); and (4) transformations of basic structural patterns (Jan is out on the playground. Is Jan out on the playground?). The teacher should base the reading-language program on the child's specific reading-language needs and interests, as determined through informal evaluation.

9. Oral language development should provide a basis for reading and written language development in the integrated language skills curriculum. Oral language activities--such as reading literature to children, dramatic play, and dialogue--combined with extensive use of experience charts can serve to help the child understand how intonation and punctuation may be used to convey meaning in oral and written expression. Such activities also provide an excellent way to show children how descriptive language can be used in understanding or developing story characters and story settings and how certain parts of sentences can be expanded to provide the listener or reader more precise information in an interesting way.

10. The teacher should also be aware of the interrelationships between listening comprehension and reading comprehension. Listening and reading activities should encompass a wide range of comprehension alternatives, ranging from factual recall to critical evaluation of material. In practice, the development of these skills may evolve through the careful development of precise purposes for listening and reading. For example, news articles and advertisements found in the daily newspaper or on television may be used to enhance critical comprehension skills. Listening comprehension skills can be taught and would seem to enhance reading comprehension skills. This consideration in the instructional program is essential if the child is to obtain maximum benefit from the language environment surrounding him.

V. RESEARCH DESIGN, INSTRUMENTATION, AND DATA COLLECTION

Formative Data

The formative data collected for analysis included (1) pre-post measures on standardized tests of reading comprehension, word analysis, listening comprehension, and reading readiness, (2) pre-post oral language interviews, using new stimulus situations designed for the project, (3) pre-post written language samples, using new stimulus situations designed for the project, (4) measures of dialect features and self-concept, using new instruments designed for the study, and (5) video-tapes, depicting teacher questioning levels and strategies. Also designed for use in Project DELTA was a new socio-economic scale since the Minnesota Scale for Paternal Occupations was badly outdated.

Because of limitations of time and financial resources, pre-post oral interviews were not administered to every child at Washington Elementary School; instead, a stratified sample of 30 children was selected to represent each grade (kindergarten through grade three) with the subjects matched on the bases of sex, ethnic classification, and socio-economic status. Therefore, 240 oral interviews were transcribed and analyzed. (30 pre- and 30 post-interviews at each grade level from kindergarten through grade three = 240.) Two video-tapes of each Washington teacher were also made for the purpose of describing teacher questioning levels and strategies.

At the conclusion of this chapter is a summary--indicating the name of the instrument or scale used and the date administered--to facilitate presentation of the formative data in the chapter which follows.

Summative Data

The summative data of the study were collected by the following techniques: (1) weekly logs recorded by strand leaders, assistant director, and director, (2) audio-tape recordings of weekly seminars, (3) video-tape recordings of classroom instruction, workshops, and seminars, (4) detailed notes based on weekly seminars recorded by assistant director and director, (5) observations of classroom instruction recorded by the DELTA staff working with the Washington School teaching staff, and (6) observations by the project director of the DELTA staff working with the Washington School teaching staff. These data were collected primarily to provide a detailed description of the process used in developing the DELTA in-service model. Summative data questions were formulated in order to search the process description for conclusions and recommendations which might be helpful in developing and implementing future in-service and pre-service teacher-training models.

Brief Description of the Population Studied

As indicated earlier in this monograph, data were gathered on the entire student population of Washington Elementary School in Berkeley, California. A total of 472 subjects were studied although in any given instance N's will vary depending upon completeness of the data.[1] In the case of oral language data, however, the prohibitive cost of administering, typing, and analyzing individual interviews made it necessary to use a sample rather than the total school population; therefore, at each grade level, 30 students were selected, matched on the bases of sex, ethnic classification, and socio-economic status.

The ethnic and socio-economic classifications for the 472 subjects in the study are shown by grade level in Table 1. When examining Table 1, one can see that several grade-to-grade fluctuations occur among the ethnic classifications. In grade one, for example, 51 percent of the subjects are Black whereas in grade two only 36 percent of the subjects are Black. There are also fluctuations in the socio-economic classifications with the most apparent being grade two (14 percent classified as Low) compared to grade three (26 percent classified as Low). However, variation in ethnic and socio-economic classification was controlled through a blocked design, and the computer program used accounted for unequal N's in the analysis.

Socio-Economic Status

Titled The California Socio-Economic Scale of Urban Occupations, the new socio-economic scale devised for Project DELTA is based on a five-point socio-economic ranking of occupations with one (1) indicating the highest socio-economic rating and five (5) indicating the lowest. The rationale for designing a new scale rather than using the Minnesota Scale for Paternal Occupations was simply that the Minnesota scale was so badly outdated that it did not seem to accurately reflect present-day occupations; i.e., the Minnesota scale was last revised in 1940. Later in this chapter, the new socio-economic scale is discussed in more detail.

Developmental Data Contrasted with Experimental Data

Although the research design is relatively simple and straight-forward, the authors wish to clarify one aspect of the study and to clearly define four items of terminology.

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[1] Most data were on a pre-post basis. However, if a student was absent on the day of a group test, it was not feasible (because of financial limitations) to later administer the test individually. Thus the N was reduced as a result of the absence.

Table 1

ETHNIC AND SOCIO-ECONOMIC CLASSIFICATIONS
For Total Number of Subjects in the Study

By Ethnic Classification

Ethnic Group	Kindergarten		Grade One		Grade Two		Grade Three	
	N	%	N	%	N	%	N	%
Black	48	48.49	61	51.26	43	36.13	63	46.67
White	40	40.40	38	31.93	49	41.18	44	32.59
Other*	11	11.11	20	16.81	27	22.69	28	20.74
Total	99	100.00	119	100.00	119	100.00	135	100.00

By Socio-Economic Classification

S.-Econ. Group	Kindergarten		Grade One		Grade Two		Grade Three	
	N	%	N	%	N	%	N	%
High	34	34.34	37	31.09	38	31.93	40	29.63
Mid	46	46.47	61	51.26	64	53.78	60	44.44
Low	19	19.19	21	17.65	17	14.29	35	25.93
Total	99	100.00	119	100.00	119	100.00	135	100.00

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*The category Other is composed of Oriental, Mexican American, and American Indian children.

1. Developmental Data

Developmental data are simply pre-post scores on an identical child. Thus, the achievement growth of a particular child always measures the development of that individual child.

2. Experimental Data

Because Project DELTA was a teacher-training model focusing on the entire teaching and student population in Washington Elementary School, it was not possible to use a control group in the usual sense; i.e., the requirements of the project made it impossible to randomly exclude from the program a large number of children who could then be measured to determine if those included in the program progressed further than those excluded. On the other hand, the authors felt that trend and real differences (statistically significant) would be more meaningful if certain segments of the data were viewed from the standpoint of a control group. Thus, to circumvent the absence of a control group, the authors proceeded on the basis of the following assumption in reference to reading and language achievement levels:

> A child entering grade four is very similar to a child completing grade three;
>
> A child entering grade three is very similar to a child completing grade two;
>
> A child entering grade two is very similar to a child completing grade one;
>
> A child entering grade one is very similar to a child completing kindergarten.

On the basis of the above assumption, pre-test data on grades one, two, three, and four[1] can be viewed as quasi-control group data since the pre-tests were administered at the beginning of the project. Then, for example, pre-tests for a child entering grade four can be compared to post-tests for a child completing grade three; i.e., the comparisons can be made on *different* groups of children rather than on the *same* children as is the case in the developmental comparisons; and these experimental comparisons are essentially a quasi-control group compared to those within the DELTA program.

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[1] To carry out the experimental comparisons, a group of beginning fourth-grade children at Longfellow Intermediate School (who had attended Washington Elementary School's third grade the previous year) were tested and interviewed.

3. DELTA Treatment and Control Design Treatment

DELTA Treatment and Control Design Treatment are two terms which are used only when describing experimental data. In other words, developmental data do not require these special labels because developmental data are simply pre-post scores on identical children participating in Project DELTA. On the other hand, experimental data do require special labels to clearly distinguish that comparisons are being made between groups of different children.

The term Control Design Treatment refers to the reading-language curriculum present in Washington Elementary School during the school year directly prior to Project DELTA; to a large degree, this treatment was based on state-adopted basal reading programs (Bank Street, Harper and Row, and Macmillan reading programs).

The term DELTA Treatment refers to the reading-language curriculum based on the in-service training model developed during Project DELTA. Although this model incorporated aspects of the curriculum present during the previous year, the DELTA content and process were new to Washington School. The nature of this treatment is discussed in more detail later in this monograph in the section on Summative Findings; however, the following content and competency areas were central to the formulation of the DELTA Treatment:

1. Developing and applying knowledge and information from reading-language related disciplines;

2. Identifying, analyzing, and formulating reading-language instructional objectives, approaches, and programs;

3. Assessing and developing oral and written expression as the basis for reading-language instruction;

4. Assessing and developing critical thinking and reading-listening comprehension abilities;

5. Assessing and developing decoding and spelling abilities;

6. Utilizing children's literature and language experiences in varied social settings to build positive reading-language interests and attitudes;

7. Organizing and administering the reading-language instructional program to account for individual variations present;

8. Creating opportunities for building positive interaction and attitudes with child, parent, and community.

Stages of the Project

From inception to conclusion, Project DELTA moved through a precise series of stages which have been indicated below to provide the reader with an overview of the project's development.

April, May, and June 1970: Initial project pre-planning with a limited staff. During this stage the general direction of the project was formulated, new instruments designed, and initial contact made with teachers and administrators to be involved the following year. A video-tape was developed with each teacher using a specified literature selection for the purpose of describing teacher questioning levels and strategies.

July, August, and September 1970: Intensive pre-planning during which the total DELTA staff formulated the general scope of the project strands, reacted to the initial project design, and formalized project goals and objectives.

Late August and Early September 1970: Three-week summer institute for participating teachers, who worked with consultant speakers on reading and language instruction.

September 1970-January 1971: Teacher participation in first strand. During this stage each teacher remained within a single strand and participated in weekly seminar meetings (strand development) on the basis of individual interest.

October 1970: Pre-tests of children and initial oral interviews of the selected sample at each grade level.

Late January 1971: Teacher and staff-conducted workshops presenting strand information and materials to total staff.

February-June 1971: Teacher participation in second strand. For this series of weekly seminars, all teachers were required to shift to a strand different from their original strand.

May 1971: Post-tests of children, second oral interview of selected sample, and video-tape of each teacher conducting a specified lesson.

Mid June 1971: Final institute, workshops, and evaluation of the project.

Standardized Tests

Cooperative Primary Tests (ETS)

At the outset of Project DELTA, the state of California was in the process of phasing out the use of the Stanford Achievement Test and converting to the Cooperative Primary Test (reading) as a statewide achievement measure. Therefore, to obtain comparable data for the project, Cooperative Primary Tests were administered to all children on a pre-post basis in grades two and three. In the Cooperative Primary series there are three separate and distinct tests: Reading Comprehension, Word Analysis, and Listening Comprehension. Each focuses on a different aspect of the child's reading-language performance, and thus each is a useful tool for evaluation and analysis.

Reading Comprehension encompasses word meaning, sentence meaning, and paragraph meaning comprehension;

Word Analysis emphasizes phonics; and

Listening Comprehension provides an indication of the child's word meaning, sentence meaning, and paragraph meaning comprehension abilities without requiring the child to use word attack skills, e.g., phonics, to read words.

Metropolitan Readiness Test

The Metropolitan Test, which assesses reading readiness is composed of six sections, each containing an even numbers of items, with a total of 102 items. The test consists of Word Meaning (16 items), Listening (16 items), Matching (14 items), Alphabet (16 items), Numbers (26 items), and Copying (14 items). The publishers indicate that no section should be viewed separately but that the test should be scored and viewed as a whole (102 items) in gauging a child's reading readiness. The handbook supplies ranges of scores so that a final letter score may be obtained: Superior = A, High Normal = B, Average = C, Low Normal = D, and Low = E.

The authors feel that some aspects of the Metropolitan test are of dubious value in regard to the test's stated purpose (measurement of reading readiness). For example, several items depend upon a degree of visual acuity which appears very remote to learning the alphabet or learning to read. On the other hand, few readiness tests are available, and use of this instrument did provide pre-post scores for children in kindergarten and grade one.

Basic Language Measures

Average Words per Communication Unit

Basically the communication unit is what A.F. Watts termed "the natural linguistic unit"--a unit that cannot be further divided without losing its essential meaning .[1] The unit was defined more precisely and termed the communication unit in the research of Walter Loban.[2] This same unit was later used by Kellogg Hunt and termed the T-unit.[3]

As an illustration of what would or would not comprise a communication unit, a simple example may be presented. If one were to say: "I see a girl with a blue dress," it would be a single communication unit. In other words, the essential meaning would be lost if the unit were segmented as follows:

I see a girl.

With a blue dress.

As a further illustration one might say: "I see a boy and I see a girl." This would be two units, each with an independent grammatical predication:

I see a boy.

I see a girl.

If one said: "I see a boy and a girl," this would be one unit since it cannot be divided into two meaningful structural units.

In counting the number of words in a unit to obtain the average words per unit, contractions (didn't, don't, etc.) are counted as two words. Generally all other words are counted as one word although there are exceptions which may appear arbitrary unless one views the structure of the word (for example, blackboard or housewife = one word, whereas desk chair or den mother would each be counted as two words even though the child may run them together as if he feels each is a single word).

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[1] A. F. Watts, The Language and Mental Development of Children, Boston, D.C. Heath and Company, 1948, pp. 65-66.

[2] Walter Loban, The Language of Elementary School Children, Champaign, Illinois, National Council of Teachers of English, 1963.

[3] Kellogg W. Hunt, Grammatical Structures Written at Three Grade Levels, Champaign, Illinois, National Council of Teachers of English, 1965.

New Instruments

Oral Language Inventory[1]

The classroom teacher's rating of a child's oral language ability was requested for each child in the selected sample. The Oral Language Observational Scale is composed of six sections: (1) quality of thought, (2) organization of expression, (3) quality and control of language, (4) fluency of language, (5) personal response to language, and (6) technical skills in oral expression. Each section is rated on a five-point scale (1 = high and 5 = low), with elements within each category marked by the teacher as "strong," "average," or "weak" in order to simplify the rating process.

Written Language Inventory[2]

The Written Language Observational Scale is essentially identical to the Oral Language Scale in that it uses the 1-to-5 rating and focuses on the same six categories. The main difference between the two scales occurs in the area of technical skills. In oral language, this category includes aspects such as articulation, mazes, and inflection whereas for written language, the same category includes aspects such as spelling, punctuation, and handwriting.

Staff Rating on Oral and Written Language

For the purpose of comparing oral and written language performance, two DELTA staff members independently rated the typed oral language transcript of the second multiple-picture stimulus and the written language samples of a multiple-picture stimulus. In rating the children's language, the judges viewed the oral language transcript as dictated writing, to allow for comparison with the language samples actually written by the children. The two independent ratings were found to be 90 percent consistent on the 1-to-5 scale. The ratings of the two judges were combined and averaged, providing one rating for oral language (viewed as dictated writing) and one rating for written language on a pre-post basis for grades two and three.

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[1] See Appendix A-1.

[2] See Appendix A-2.

New Picture Stimulus Situations for Oral and Written Language

For data analysis purposes, the language production from the contrast-perception, reality-reversal, and multiple-picture stimuli was treated quantitatively in two ways. First, the production from the above three stimuli was analyzed together; and second, the multiple-picture stimulus production was analyzed separately. The separate treatment of the multiple-picture stimulus data made provision for a comparison of oral and written language production. Further analysis is being undertaken to examine the relationship between the type of stimulus used and the nature of the language production obtained. A description of each new picture stimulus situation follows.

1. The Contrast-Perception Stimulus[1]

In virtually all picture stimulus situations, the components of the picture are depicted in a way to meet the child's normal expectations. For example, all pictures are depicted in such a way that the child sees nothing unusual which would give him cause to use an analytical framework to explain the discrepancy between what he anticipates and what he observes.

The contrast-perception stimulus is a single-picture stimulus providing something other than the child's normal expectations: for example, a child teaching a classroom of adults or a picture of two couples dancing in which an exceptionally tall woman is dancing with an extremely short man and an exceptionally tall man is dancing with an extremely short woman. The child is asked to describe the picture and then to explain what he sees that he thinks is "funny or unusual." Thus the contrast-perception stimulus is designed to evaluate the child's ability at an early age (kindergarten through grade three) to observe closely and to analyze what he sees.

2. The Reality-Reversal Stimulus[2]

The reality-reversal stimulus is a single-picture stimulus which is too far removed from the child's expectations to be classified as a contrast-perception stimulus: for example, an angry-looking fish peering into his fishbowl and watching a cat swimming happily underwater. The two stimulus situations are designed so that the child speaks (or writes) first about the contrast-perception stimulus and second about the reality-reversal stimulus. Thus, there is a learning process in which the child observes and analyzes an extension of reality as compared to a reversal of reality.

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[1] See Appendix B-1, B-2.

[2] See Appendix B-1.

2. The Multiple Picture Stimulus[1]

The multiple-picture stimulus is a set of three pictures designed to lead the child from description, to narrative, and then to expository or interpretive language. The following is one example of a multiple-picture stimulus situation:

(1) On the ledge of a cliff, a boy is holding onto a tree and removing one of his socks. Above the child, his dog is looking down, unable to assist the boy in climbing back up.

(2) The boy is holding up a branch he has evidently broken from the tree, with the sock attached to the top of the branch so that the dog can snatch the sock between his teeth.

(3) The dog is seen holding the sock in his mouth and running toward a woman (evidently the boy's mother) standing in front of a house.

In very simple terms, the multiple-picture stimulus (as described above) provides the child with a disaster-rescue situation in which the dog is the hero who will evidently lead the mother to the ledge where the child is still clinging precariously.

To any adult the precise nature of a given picture stimulus situation is self-evident; i.e., it is self-evident if the picture is contrast-perception, reality-reversal, or multiple-picture. It should be noted, however, that each picture or each set of pictures can be used for either oral or written language. In other words, the multiple-picture stimulus situation described above could be used for an oral language interview or for developing a written composition, depending upon the needs and desires of the classroom teacher. In addition, a group of children could jointly examine a given picture or set of pictures, orally, and the teacher could write a series of possible stories or explanations on the chalkboard. The conclusion of the lesson would be for the children to jointly decide which story or explanation was the best one to be used, thereby providing a learning experience for the entire class

In regard to data collection on Project DELTA, the new picture stimuli were used for pre-post oral interviews (30 children per grade level in kindergarten through grade three) and pre-post written language samples in grades two and three.

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[1] See Appendix B-1, B-2.

The Listening-Comprehension Inventory[1]

The Listening-Comprehension Inventory is a phonological assessment instrument designed to determine whether or not differences in comprehension arise because of a child's use of nonstandard dialect rather than the so-called prestige dialect, i.e., the standard English dialect used by national network newscasters. By way of explanation, it should be stressed that the inventory is not designed to assess difficulties in hearing but rather to assess the nonstandard speaker's interpretations of standard English which may or may not lead to differences in comprehension.

The inventory has two separate forms: on the first day, Form A was first administered to the entire class, and on the next day Form B was administered to the entire class. Each form contains three practice items and 25 items to be assessed by the inventory. Each item contains three pictures; and after listening to the item read aloud, the child is asked to draw a circle around the picture he believes to be the proper response.

Form A[2] is designed with no context clues and provides an assessment of 25 items in standard English which become homophones when spoken in nonstandard dialect. For example, the nonstandard speaker typically drops the t ending on many words. Thus, The tent is under the tree would become The ten is under the tree. Form A, therefore, is designed as an early assessment instrument for determining the degree of comprehension difficulty a nonstandard speaker encounters when faced with a combination of homphones and no contextual clues.

Form B [3] provides context clues which may help the child comprehend which picture is the proper response (in accordance with standard English) regardless of whether or not he has difficulty with one particular word (i.e., the word which is a homophone in nonstandard dialect). For example, in the case of ten and tent, Form B will provide an additional contextual clue: The tent with the flag is under the tree. Thus, by means of this early assessment instrument, it should be possible for the teacher to focus on the precise nature of the child's phonological difficulties and to determine whether or not additional contextual clues provide sufficient information to enable the child to overcome his comprehension difficulty with the homophone feature of one particular word.

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[1] See Appendix C-1, C-2.

[2] See Appendix C-1.

[3] See Appendix C-2.

The Phonological Spelling Inventory[1]

The Phonological Spelling Inventory is an assessment instrument designed to determine whether or not differences in spelling arise because of a child's use of a nonstandard dialect rather than the so-called prestige dialect, i.e., the standard English dialect used by national network newscasters. Each spelling inventory is designed with enough contextual clues in the individual sentence item for the child to correctly determine the word to be spelled. Thus, one would assume that if the child misspelled the word, the cause would be either that he was simply unable to spell the word in question or that dialect differences resulted in a spelling different from that of the accepted spelling.

The Phonological Spelling Inventory, designed for early assessment of the child's difficulties with spelling, has four separate forms, each containing 25 items.

One should also note the rationale behind testing or not testing certain words on any given form of the inventory. If we take the words ten and tent, for example, these should not be assessed on the same inventory. The reasoning behind this statement is that a child who habitually dropped the t ending and spelled both words as ten would possibly become confused and wonder why the teacher was asking him to spell the same word twice during the course of a single spelling inventory. Thus, each homophone in a set is presented in a different form of the inventory.

The Phonological Spelling Inventory was administered in the same way the classroom teacher administers any other spelling inventory:

(1) The word to be spelled is read in a clear, distinct tone, i.e., avoiding over-pronunciation of the individual word.

(2) The sentence containing the word is read.

(3) The word to be spelled is repeated in a clear, distinct tone--again avoiding over-pronunciation of the individual word.

For example, one item is as follows (using the word wind):

(1) The word wind is read aloud (without over-pronunciation).

(2) The sentence The wind is blowing through the trees is read aloud.

(3) The word wind is repeated--again without over-pronunciation.

The entire inventory is administered in the same way

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[1] See Appendix D.

The Language Preference Inventory[1]

The Language Preference Inventory is an assessment instrument designed to determine whether the child prefers to use nonstandard dialect in the classroom or the so-called prestige dialect, i.e., the standard English dialect used by national network newscasters. A total of 30 deviations from standard English usage have been identified and the Language Preference Inventory contains 30 items corresponding to these deviations.

The Language Preference Inventory has two matched forms (each with 30 items): Form A and Form B. One-half of the children in grade three received From A and one-half received Form B, with attention given to the ethnic and socio-economic composition of each classroom so that the results of assessment with either form would be completely comparable. The selection of the 30 items included in each form of the inventory was decided upon after examining past research.

In administering both forms of the Language Preference Inventory, a pre-recorded tape was used. The recordings for the inventory were made by a person speaking the prestige dialect as well as the nonstandard dialect. This is a very crucial aspect of making the inventory meaningful to the child. In other words, the standard-speaking teacher would not be able to use the appropriate tone and intonation patterns when reading the nonstandard items. And without the correct tone and intonation patterns, the inventory would seem bland and stilted to the dialect-speaking child.

The following are sample items from the inventory:

The girl happy.
The girl's happy.

Every day the boy is pulling a wagon.
Every day the boy be pulling a wagon.

A picture is opposite each pair of sentences, and the child draws a line from the sentence form he prefers to the picture. Note that pictures are not necessarily essential to the inventory; i.e., the child could be instructed to put an X next to the sentence form he prefers. However, the authors felt that pictures would enhance the child's interest and make the inventory more interesting--an aspect of considerable importance when dealing with primary-grade children.

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[1] See Appendix E-1, E-2.

I AM--Self-Concept Assessment[1]

The "I AM" self-concept assessment is designed to assess the child's concept of self in relation to reading activities, language activities, and play activities in a wide range of social settings. The instrument is composed of 23 pairs of pictures. In each paired item the child is either smiling or frowning to indicate: I am happy (or sad) when I... read to the class, the teacher reads to me, when I write, etc. Form M (males) was designed for boys and Form F (females) for girls. The child circles the picture he feels appropriate to his own attitude about a specific activity.

One basic orientation necessary for performance on the "I AM" instrument is the understanding of top/middle/bottom spatial relationships. Children who can locate the top, middle, or bottom row of pictures will move with ease through the task. For those youngsters having difficulty, practice pictures have been provided to develop top/middle/bottom orientation.

In addition, to gain from the "I AM" instrument as much self-concept information as possible, the child must feel that:

1. This is not like a school paper, where answers are right or wrong, and

2. He is not doing it to please his teacher but to help us understand how he feels about school, i.e., what he likes and doesn't like about it.

In other words, it is very important that the teacher establish an atmosphere "as matter of fact" as possible if accurate results are to be obtained. If the child responds positively to school situations about which he in reality has negative attitudes, the instrument will be of little instructional help as classroom planning progresses. Thus, those situations which are really uncomfortable for the child may be revealed if the child feels free to express his opinion.

Teacher Evaluation

The 24 classroom teachers in Project DELTA were enrolled as students in the University of California Education Extension division. They participated in a three-week workshop in August 1970 and a one-week workshop in June 1971. Throughout the school year (September 1970 to June 1971), the teachers were involved with specific strand groups, with one DELTA staff member assigned to each group. Strand leaders regularly observed teacher's classroom instructional activities and conducted weekly seminar meetings.

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[1] See Appendix F-1, F-2.

Two video-tapes were developed of each teacher conducting a lesson on a specified literature selection. The DELTA Comprehension Taxonomy was then used to describe and analyze questioning levels and strategies as observed on the video-tapes.

The DELTA Comprehension Taxonomy[1]

The DELTA Comprehension Taxonomy was developed (1) as a framework for describing and analyzing the levels at which youngsters operate in terms of comprehension abilities, (2) as a guide for encouraging the development of more complex comprehension skills and their corresponding thought processes, and (3) as a means of analyzing interactive strategies used by teachers and children in the process of developing such skills.

In determining the major level of meaning, the following definitions were decisive factors:

Factual:	The processor (teacher or child) is concerned solely with content, and any processing will not change the information being handled. The processor does not intellectually manipulate or control the facts, concepts, generalizations, etc., with which he is working.
Interpretive:	The processor (teacher or child) modifies the content by analyzing, reconstructing, or inferring relationships with little substantiation. No transformation is made on the information.
Applicative:	The processor (teacher or child) transforms, utilizes, applies or evaluates the information with substantiation. Transformation of information is demonstrated through application in a new situation.

In applying the Taxonomy, the following guidelines were used:

1. The categorizing of questions, comments, or responses were viewed within the contextual situation from which they arose; i.e., a teacher's question such as "How did the purple pebble get there?" may be factual (if the information was stated in the text) or interpretative (if the child had to infer the answer from unstated information).

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[1] See Appendix G

2. Responses or questions were considered relative to the child's intellectual ability; i.e., a kindergartner's comment on the applicative level may appear much "weaker" than a third grader's.

3. No inferences were made of a child's background. Responses were categorized as "it is," not as "it was meant to be."

Functioning among or between all levels (factual, interpretive, applicative) were the following questioning strategies:

Focusing (Taba):[1]	The initiating question or statement that begins the discourse unit (a discourse unit refers to all verbal interaction evolving from and relating to the initiating question or statement) and any attempt to refocus on this initiating lead-in.
Ignoring:	No acceptance is made of the question or response.
Controlling (Taba):	Teacher dominates; teacher handles the cognitive task rather than giving the children an opportunity to do so. EX: TQ That was a really good story, wasn't it? TQ I think Willy made the right choice, don't you? TQ Who would you like to be in the story... would you like to be Willy?
Receiving:	An acknowledgment is made but with no elaboration. Receiving may be either positive or negative. If negative, this will be indicated with a (-). Repeating what has been previously stated by either teacher or child (this is a common occurrence) is coded in this category. EX: CR Yeah--I know. TR: Right...that's good thinking. TR: Oh, you think it was Alexander. CR: No..I don't think so.
Clarifying (Taba):	Explanatory comment/question to redefine previous information. EX: TR Oh, I see what you mean...it could have been... TQ Could you explain your point again, Eric? CQ Does Eric mean that...

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[1] Hilda Taba and Freeman F. Elzey, "Teaching Strategies and Thought Processes," Teachers College Record, 1964, 65, pp. 524-534.

Extending (Taba, Guszak[1]): Any attempt to solicit additional information on the same subject at same level of comprehension.

EX: TQ Anything else you can say about it now?
TC Keep going--that sounds interesting.
TQ Who has another idea?

Raising: Any attempt to solicit additional information on same subject at a higher level of comprehension.

EX: TQ But why would you especially like to be Alexander?
TQ O.K., if that did happen, what kinds of problems do you think you'd have?
TQ How come you like this ending best?

The California Socio-Economic Scale Of Urban Occupations[2]

The California Socio-Economic Scale of Urban Occupations, specially designed by the authors, is based on a five-point socio-economic ranking of occupations with one (1) indicating the highest socio-economic rating and five (5) indicating the lowest. To some degree, the current scale was based on the Minnesota Scale for Paternal Occupations[3] inasmuch as the occupational listings contained in the Minnesota scale were used as a developmental baseline. However, a number of major differences exist between the Minnesota scale and the new scale.[4]

In designing the California scale, an effort was made to avoid using education or lack of education as the sole basis for inclusion in socio-economic categories 1 and 2; because the scale is a socio-economic scale, the individual's income is included as a fundamental characteristic of the ratings. On the other hand, welfare recipients have been viewed in relationship to the educational level in the home rather than merely categorizing all welfare recipients as socio-economic 5; i.e., the present scale was designed to arrive at the socio-economic status of the children being studied. Thus the input the child receives at home is viewed as 4 if the welfare recipient had one or more years of college education and as 5 if the welfare recipient had a high school education or less.

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[1] Frank J. Guszak, "Teacher Questioning and Reading," The Reading Teacher, 1967, 21, pp. 227-234.

[2] See Appendix H.

[3] Minneapolis, Institute of Child Welfare, University of Minnesota.

[4] See appendix H.

Several occupations in the socio-economic listing may require the user of the scale to have special knowledge of the situation to accurately rate the occupation. For example, an economist has been rated as 2 whereas the head economist at a major bank might be rated as 1; a waiter has been rated as 4 whereas a waiter in a well-known gourmet restaurant might be rated as 3.[1]

Both parents of each child in the study were rated in accordance with the California scale. When one parent received a rating higher than the other (for example, husband-attorney and wife-secretary), the higher rating was used. In general terms, the five-point scale is divided into the following categories:

Socio-Economic 1: Highly trained professionals such as doctors, lawyers, and professors at four-year colleges or universities; relatively unique individuals such as nationally known writers, painters, muscians, entertainers, and professional athletes; owners of major establishments such as major manufacturing enterprises, well-known gourmet restaurants, or large department stores.

Socio-Economic 2: Less highly trained professionals such as teachers, librarians, researchers, nurses (R.N.), and computer programmers.

Socio-Economic 3: Skilled persons needing a certain amount of training such as steam-fitters, plumbers, secretaries, salesmen, vocational nurses (not R.N.), policemen, and firemen.

Socio-Economic 4: Semi-skilled workers such as factory workers, apprentices in craft unions, commercial fishermen, bus drivers, taxi drivers, longshoremen, and practical nurses.

Socio-Economic 5: Unskilled workers such as day laborers, janitors, dishwashers, nurses' aides, and welfare recipients with a high school education or less.

Summary of Data Collected

For the purpose of statistical comparisons, each child was categorized by ethnic classification: Black, White, or Other (Oriental, Mexican-American, and American Indian).

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[1] For additional examples, see appendix.

Each child was further categorized by socio-economic classification on the basis of the scale developed for the project (1 = high socio-economic; 5 = low socio-economic). For presentation of the data, the socio-economic ratings were further congealed: ratings 1 and 2 were combined as High; rating three was considered Middle; ratings 4 and 5 were combined as Low.

The following summary enumerates the various evaluation instruments and the date each was administered.

(1) Cooperative Primary, Reading (ETS): pre-test (October 1970), and post-test (May 1971) administered to all children in grades two and three; pre-test (October 1970) administered to 50 fourth-grade children entering Longfellow School from Washington School; post-test (May 1971) administered to all children in grade one.

(2) Cooperative Primary, Word Analysis (ETS): pre-test (October 1970), and post-test (May 1971) administered to all children in grades two and three; pre-test (October 1970) administered to 50 fourth-grade children entering Longfellow School from Washington School; post-test (May 1971) administered to all children in grade one.

(3) Cooperative Primary, Listening (ETS): pre-test (October 1970), and post-test (May 1971) administered to all children in grades two and three; pre-test (October 1970) administered to 50 fourth-grade children entering Longfellow School from Washington School; post-test (May 1971) administered to all children in grade one.

(4) Metropolitan Readiness: pre-test (October 1970) and post-test (May 1971) administered to all children in kindergarten and grade one.

(5) Average Words per Communication Unit: measure applied to language samples from oral interviews and written compositions following data collection and analysis on pre- (October 1970)-post- (May 1971) basis for children in the oral language sample.

(6) Teacher Rating--Oral Language Observational Scale: one rating by the classroom teacher in February 1971 for each child in the oral language sample.

(7) DELTA Staff Rating--Oral Language Observational Scale: rating of the multiple-picture segment of the oral interview following data collection and analysis on pre- (October 1970)-post- (May 1971) basis for children in the oral language sample.

(8) DELTA Staff Rating--Written Language Observation Scale: rating of the written multiple-picture sample following data collection and analysis on pre- (October 1970)-post- (May 1971) basis for children in the oral language sample.

(9) Listening-Comprehension Inventory: administered in October 1970 to all children in kindergarten through grade three.

(10) Phonological Spelling Inventory: administered in October 1970 to all children in grade three.

(11) Language Preference Inventory: administered in October 1970 to all children in grade three.

(12) I AM--Self-Concept Assessment Instrument: administered in October 1970 to all children in kindergarten through grade three.

(13) Teacher Evaluation: two video-tapes (May 1970 and May 1971) were developed for each teacher for purposes of describing and analyzing teacher questioning levels and strategies.

Data Analysis

Developmental data for Hypothesis A of guide questions 1, 2, 3, and 4--dealing with reading comprehension, word analysis, listening comprehension, and reading readiness respectively--were tested in a similar manner. The analysis consisted of a two-way analysis of variance of simple effects of pre-post data within levels of ethnic classification with repeated measures on the pre-post factor; the second computer run used within levels of socio-economic classification.

Experimental data for Hypothesis B of guide questions 1, 2, 3, and 4--dealing with reading comprehension, word analysis, listening comprehension, and reading readiness respectively--were also tested in a similar manner. A two-way factoral analysis of variance with pre-post data nested within levels of ethnic classification was used; the second computer run used within levels of socio-economic classification.

Guide question 5 required no statistical analysis. The conclusions were based on careful inspection of graphs developed for reading comprehension achievement levels for children from different ethnic classifications.

Guide questions 6, 7, 8, and 9--dealing with various developmental measures of oral and written language performance--were tested using a similar analysis, the two-way analysis of variance of simple effects described above.

Exploratory question 1, parts a through f dealing with relationships between various measures of oral and written language performance--was treated by using the BC TRY System of Cluster and Factor Analysis to estimate the correlations required.

Exploratory questions 2, 3, 4, and 5 were designed to examine the relationships between ethnic classification and language performance on (a) the Listening Comprehension Inventory, (b) the Phonological Spelling Inventory, (c) the Language Preference Inventory, and (d) the I AM Self-Concept Assessment Instrument. These data were treated by using the CAL AOFVWST to compute one-way analysis of variance tests and Scheffe post hoc comparisons between ethnic groups for status differences.

Exploratory question 6--dealing with a description of teacher questioning levels and strategies as identified by the DELTA Comprehension Taxonomy--required simple calculation of means and percentages for various questioning levels and strategies.

Summative data questions 1 through 11 required no statistical analysis. These data were handled descriptively with interpretation based on weekly logs, detailed notes, audio- and video-tape recordings, and other techniques described earlier in this monograph.

VI. FORMATIVE DATA: READING AND LANGUAGE ACHIEVEMENT

Understanding the findings on formative data necessitates differentiating the following terms:[1] developmental data represent pre-post achievement scores on identical children; experimental data represent data collected from children in the DELTA Treatment and the Control Design Treatment; DELTA Treatment refers to the reading-language curriculum based on the in-service training model; and Control Design Treatment identifies the reading-language curriculum at Washington School during the school year directly prior to Project DELTA. Thus, the experimental design is quasi-experimental in nature. To control for pupil variance, data were treated by blocking on ethnic and socio-economic characteristics.

In addition to comprehending the above definitions, table and figure labels should be examined carefully in order to avoid confusion relating to specific data being described.

Basic Guide Question One--Reading Comprehension Achievement

What gain in reading comprehension achievement could be expected for children in different ethnic and socio-economic classifications in grade one, grade two, and grade three?

Hypothesis A, Developmental Data: Pre-post achievement scores will differ significantly and reflect a minimum of one month's growth in reading comprehension achievement for each month of instructional time for children in various ethnic and socio-economic classifications at each grade level.

Findings by Ethnic Classification

As presented in Table 2, the contrasts at each grade level reveal post-test scores significantly greater than pre-test scores, thereby confirming the first part of the hypothesis. With the exception of the contrast for Black children in grade two, the growth in reading achievement also reflects for all grades a minimum of one month's gain for each month of instructional time, thereby confirming the second part of the hypothesis.[2]

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[1] For a complete discussion of these concepts, see Chapter V.

[2] The instructional period spanned seven months from mid-October to mid-May.

Table 2

ETS READING COMPREHENSION

Developmental Data

(by Ethnic Classification)

Grade	Ethnic Group	Raw Scores		F-Value*	N	Grade Equivalents[a]		Growth
		Pre	Post			Pre	Post	
1	Black		23.13		38		1.8	+ 0.8
	White		31.13		31		2.2	+ 1.2
	Other		31.22		18		2.2	+ 1.2
2	Black	19.69	32.31	62.88*	31	1.7	2.2	+ 0.5
	White	27.82	39.85	38.32*	38	2.1	2.8	+ 0.7
	Other	20.75	36.85	38.32*	19	1.8	2.5	+ 0.7
3	Black	21.19	30.00	61.62*	46	2.0	3.1	+ 1.1
	White	35.03	42.66	24.40*	31	3.4	4.5	+ 1.1
	Other..	26.50	35.42	29.59*	23	2.5	3.6	+ 1.1

*significant at .05 level

a) No pre-test was administered in grade one because the test was judged inappropriate; i.e., the child was required to use reading skills not taught prior to grade one. For purposes of the Growth data, children were assumed to have entered grade one with a grade equivalency of 1.0.

For all ethnic groups, the greatest overall growth in reading comprehension occurred in grade three, followed by grades one and two, respectively. Black children achieved comparatively larger gains in grade three than at any other grade level, whereas White and Other children achieved greatest gains in grades one and three. These data also indicate that at the end of grade one the reading comprehension achievement of Black children is markedly below that of White and Other children. This difference may be partially explained by data presented in Table 14, p. 99, discussed in more detail later in this chapter. Briefly, the data indicate that for Black children readiness achievement scores at the end of kindergarten and grade one are at a lower level than are scores for White and Other children at the beginning of kindergarten and grade one. These findings suggest that in the homes of White and Other children the hidden curriculum parallels classroom curriculum more closely than it does in the homes of Black children.

One important feature of the data--a feature requiring careful examination of the failings of minority group education--is that Black and Other children drop further and further behind White children. For example, a comparison of post-tests for Black and White children reveals that the White children are 0.4 years ahead in grade one, 0.6 years ahead in grade two, and 1.4 years ahead in grade three.[1] If this were simply a case of White children performing significantly above the expected age-grade norm, the problem would not be serious; however, as pre-test scores indicate, Black children achieved 1.7 (rather than 2.0) at the beginning of grade two and only 2.0 (rather than 3.0) at the beginning of grade three. Thus, entering third-grade Black children already score a full year below the expected age-grade norm.[2]

An examination of pre-post scores in conjunction with growth rates reveals that for Black children grade two is a critical year, with minimal growth (0.5) compared to the expectation (0.7). At this level Black children evidently have difficulty in assimilating and accommodating learning experiences in the curriculum. (Grade two is also the poorest performance year for White and Other children.) In grade three all children gained 1.1 years, well above the expected growth rate, indicating that once initial difficulties have been overcome Black and Other children are capable of achieving large gains in a curriculum such as that developed in Project DELTA.

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[1] Grade one = 2.2 compared to 1.8; grade two = 2.8 compared to 2.2; grade three = 4.5 compared to 3.1.

[2] No pre-test was administered in grade one because the children did not have the necessary reading skills. In order to calculate growth data, a grade equivalency of 1.0 was assigned to children entering grade one.

A comparison of scores graphically represented in Figure 1 reveals an interesting feature: for each ethnic group, grade two pre-test scores are lower than grade one post-test scores. A possible explanation would suggest that the data comparison is based on different populations within the same ethnic classification. This interpretation however, does not seem plausible since the children are from a similar environment because Washington School is integrated by neighborhood housing patterns. A more feasible explanation is that reading skills development in grade one fails to reach the level required for reading independence. Therefore, reading skills are not used during the summer months, resulting in a certain degree of regression during vacation. As children become skilled independent readers possessing self-perpetuating reading interests and reaching an achievement level within the second-grade range, they are less likely to suffer from such a regression. This explanation is supported by further inspection of Figure 1. White and Other children achieving at or above a 2.5 grade-equivalent level in grades two and three demonstrated no regression pattern. Black children, however, failed to achieve this level and continued to demonstrate a regression pattern in both grades two and three. This hypothesis could also be tested for Black children by following their performance in grades four and five when summer regression would not be expected based on their comprehension achievement level at the end of grade three. No doubt the environment outside the school, specifically in the home, contributes to the child's reading mastery; for example, compared to Black children, White and Other children may receive more tutorial help from parents, may play more reading-related games, and may be encouraged to read more during the summer.

Thus for Guide Question One, Hypothesis A was accepted by concluding that post-test reading comprehension scores were significantly greater than pre-test scores for children in all ethnic groups and at all grade levels. With the exception of Black children in grade two, these scores reflected a minimum of one month's growth for each month of instructional time. The data also revealed achievement patterns favoring White and Other children in contrast to Black children.

Findings by Socio-Economic Classification

As presented in Table 3, all reading achievement score contrasts for children in various socio-economic categories (hereafter designated as SES) differed significantly in the predicted direction. A minimum of one month's growth occurred for each month of instructional time,[1]

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[1] Grade two growth scores are .6 years for Low and Mid SES children; 0.6 represents six-tenths of one year or a growth of .72 months, thus fulfilling the hypothesis.

Figure 1

ETS READING COMPREHENSION
Developmental Data

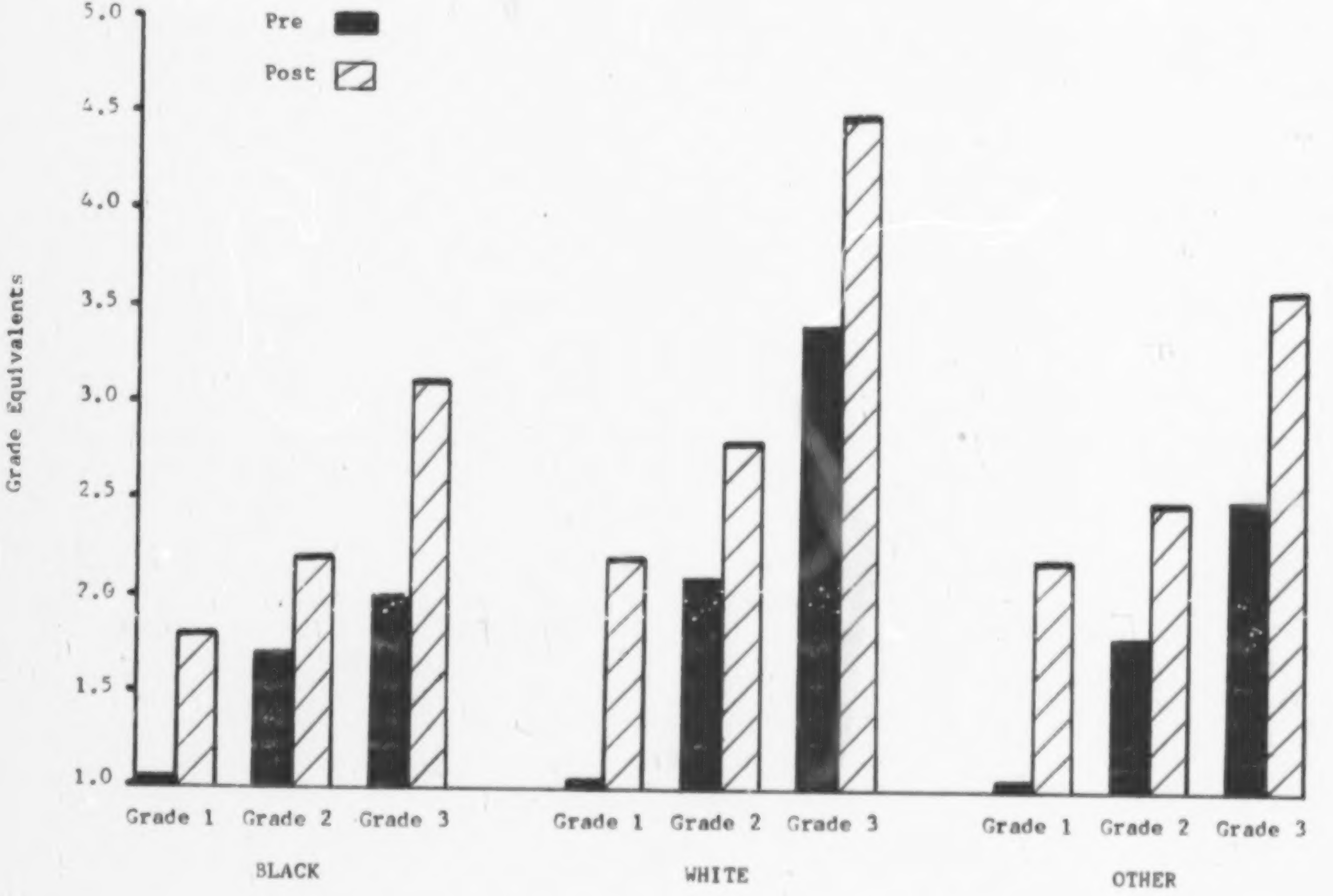

Table 3

ETS READING COMPREHENSION

Developmental Data

(by Socio-Economic Classification)

Grade	S.-Econ. Group	Raw Scores		F-Value*	N	Grade Equivalents a)		Growth
		Pre	Post			Pre	Post	
1	High		29.18		28		2.1	+ 1.1
	Mid		27.04		45		2.0	+ 1.0
	Low		26.57		14		2.0	+ 1.0
2	High	28.41	43.07	42.90*	28	2.1	3.2	+11.1
	Mid	22.39	34.82	69.22*	50	1.8	2.4	+ 0.6
	Low	14.91	27.27	16.08*	10	1.4	2.0	+ 0.6
3	High	32.14	39.55	19.54*	28	3.1	4.1	+ 1.0
	Mid	28.02	35.51	48.16*	48	2.7	3.7	+ 1.0
	Low	17.92	29.52	64.48*	24	1.7	3.1	+ 1.4

*significant at .05 level

a) No pre-test was administered in grade one because the test was judged inappropriate; i.e., the child was required to use reading skills not taught prior to grade one. For purposes of the Growth data, children were assumed to have entered grade one with a grade equivalency of 1.0.

with greatest gains achieved in grade three, followed by grades one and two, respectively. Low and Mid SES groups achieved greatest gains in grades three and one whereas High SES children exhibited consistent and substantial gains at all grade levels.

Further inspection of Table 3 reveals the relationship between SES level and achievement.[1] In grades two and three, the High and Low SES groups differ in post-test achievement by 1.2 and 1.0 years respectively. One would expect that this discrepancy reflects differences both in learning rate and in the parallel between the hidden home curriculum and the classroom curriculum in terms of motivational and instructional support.

Thus the findings indicate that post-test reading comprehension scores were significantly greater than pre-test scores for children in all SES groups and at all grade levels. Furthermore, the gain of one month's achievement for each month of instructional time lends practical significance to these findings.

Hypothesis B, Experimental Data: Reading comprehension achievement scores for children in different ethnic and socio-economic classifications in the DELTA Treatment will differ significantly from the comprehension scores for children in the Control Design Treatment for grade one, grade two, and grade three.

Findings by Ethnic and Socio-Economic Classifications

When the researchers considered achievement gains for children in different ethnic groups, only one statistically significant difference was found--favoring the DELTA Treatment for Other children in grade one, as indicated by Table 4. However, the trend for each of the nine contrasts favored the DELTA Treatment, reflecting growth ranging from .1 to .6 of a year. In other words, the consistent direction of the trends supports the hypothesis that the DELTA Treatment was superior to the Control Design Treatment. The greatest trend differences occurred at grade three for White (.5 of a year) and Other children (.6 of a year), paralleling the developmental data reported earlier. Black children demonstrated greatest gains in grade two (.3 of a year).

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[1] Numerous studies indicate a high correlation between socio-economic status and achievement on various language measures. The relationship is clearly evident in Tables 3, 5, and 7, offering validating support for the socio-economic scale designed for this study.

Achievement data blocked on socio-economic classification are presented in Table 5 and reveal one significant difference favoring the DELTA Treatment. This difference (.6 of a year) occurred at grade one for children of Low SES classification. Again, however, all nine contrasts indicate gains in the direction favoring the DELTA Treatment, thereby suggesting a trend which may be of practical significance. High SES children exhibited greatest gains at grade two (.5 of a year) and grade three (.3 of a year); Mid SES children exhibited greatest gains at grade one (.2 of a year) and grade three (.3 of a year). The statistically significant gain by the Low SES group in grade one reveals that Project DELTA manifested an important impact for these children. The Low SES group demonstrated trend gains at grade two (.3 of a year) and grade three (.2 of a year).

Thus for Guide Question One, Hypothesis B, the experimental hypothesis related to reading comprehension achievement could be accepted only for Other children in grade one and for Low SES children in grade one. However, the data analysis reveals all eighteen contrasts in the direction predicted, favoring the DELTA Treatment over the Control Design Treatment. This finding deserves further exploration, particularly since the original research design for Project DELTA specified a second research and development year during which the process and product defining the DELTA Treatment was to be transferred to other elementary schools for purposes of evaluation and refinement. A budget crisis in the Office of Education negated this second year, resulting in the termination of research and development efforts by Project DELTA. Therefore, several hypotheses such as the one identified above could not be further refined and tested.

Basic Guide Question Two--Word Analysis Achievement

What gain in word analysis achievement could be expected for children in different ethnic and socio-economic classifications in grade one, grade two, and grade three?

Hypothesis A, Developmental Data: Pre-post achievement scores will differ significantly and reflect a minimum of one month's growth in word analysis achievement for each month of instructional time for children in various ethnic and socio-economic classifications at each grade level.

Table 4

ETS READING COMPREHENSION

Experimental Data

(by Ethnic Classification)

Grade	Ethnic Group	Raw Scores: Control Design Treatment	Raw Scores: DELTA Treatment	F-Value*	N: Control Design Treat.	N: DELTA Treat.	Grade Equivalents: Control Design Treat.	Grade Equivalents: DELTA Treat.	Growth
1	Black	19.87	23.13	1.16	31	38	1.7	1.8	+ 0.1
	White	27.70	31.13	1.27	37	31	2.1	2.2	+ 0.1
	Other	20.75	31.22	6.67*	20	18	1.8	2.2	+ 0.4
2	Black	20.83	22.45	.44	46	33	2.0	2.3	+ 0.3
	White	34.65	34.28	.02	31	40	3.4	3.5	+ 0.1
	Other	25.78	24.62	.13	23	21	2.5	2.6	+ 0.1
3	Black	30.90	29.78	.29	21	46	3.0	3.1	+ 0.1
	White	38.89	42.42	2.27	18	31	3.9	4.4	+ 0.5
	Other	31.20	35.00	.95	5	23	3.0	3.6	+ 0.6

*significant at .05 level

Table 5

ETS READING COMPREHENSION

Experimental Data

(by Socio-Economic Classification)

Grade	S.-Econ. Group	Raw Scores Control Design Treatment	Raw Scores DELTA Treatment	F-Value*	N Control Design Treat.	N DELTA Treat.	Grade Equivalents Control Design Treat.	Grade Equivalents DELTA Treat.	Growth
1	High	27.24	29.18	.33	29	28	2.0	2.1	+ 0.1
	Mid	22.96	27.04	2.37	48	45	1.8	2.0	+ 0.2
	Low	14.91	26.57	5.13*	11	14	1.4	2.0	+ 0.6
2	High	31.61	34.67	1.05	28	30	3.1	3.6	+ 0.5
	Mid	27.49	26.00	.45	47	53	2.6	2.7	+ 0.1
	Low	17.92	19.18	.10	25	11	1.7	2.0	+ 0.3
3	High	37.08	39.18	.47	12	28	3.7	4.0	+ 0.3
	Mid	34.22	35.21	.20	23	47	3.3	3.6	+ 0.3
	Low	30.33	29.52	.06	9	25	2.9	3.1	+ 0.2

*significant at .05 level

Findings by Ethnic Classification

All pre-test and post-test word analysis achievement scores differed significantly as shown by Table 6. In addition, with the exception of Black children in grade one, all subjects achieved a minimum of one month's growth for every month of instructional time; these findings closely parallel findings on reading comprehension achievement. Greatest gains occurred at grades two and three for Black children and at grades one and three for White and Other children.

Achievement discrepancies between ethnic groups were also present in in these data. The differences between word analysis grade equivalents for Black children and the equivalents for White and Other children were as follows: .7 and .8 of a year, respectively, at grade one; 1.3 and 1.1, respectively, at grade three. In grade one word analysis achievement apparently develops for Black children at a much slower pace (.5 of a year) than it develops for White (1.2 years) and Other (1.3 years) children. The earlier discussion of the hidden home curriculum with its related reading activities in White and Other families deserves careful consideration in explaining these findings.

As was the case with reading comprehension, the data on word analysis achievement reflect a regression during the summer period, as revealed in Figure 2 by post-test scores in grade one and pre-test scores in grade two. These findings also seem to indicate that the development of reading independence, as measured by a grade equivalency of 2.5 years or above, eliminates the regression effect; after summer vacation both White and Other children achieved word analysis scores equal to or better than scores obtained prior to vacation at second and third grades. Black children demonstrated the regression phenomenon at all grade levels.

The relatively similar ethnically-related patterns for reading comprehension achievement and word analysis achievement are notable in comparing Table 2 and Table 6; however, focusing on the differences between two measures can also prove valuable. When comparing third grade post-test grade equivalents for example, we observe the following:

	Reading Comprehension	Word Analysis
Black	3.1	2.6
White	4.5	3.9
Other	3.6	3.7

Table 6

ETS WORD ANALYSIS

Developmental Data

(by Ethnic Classification)

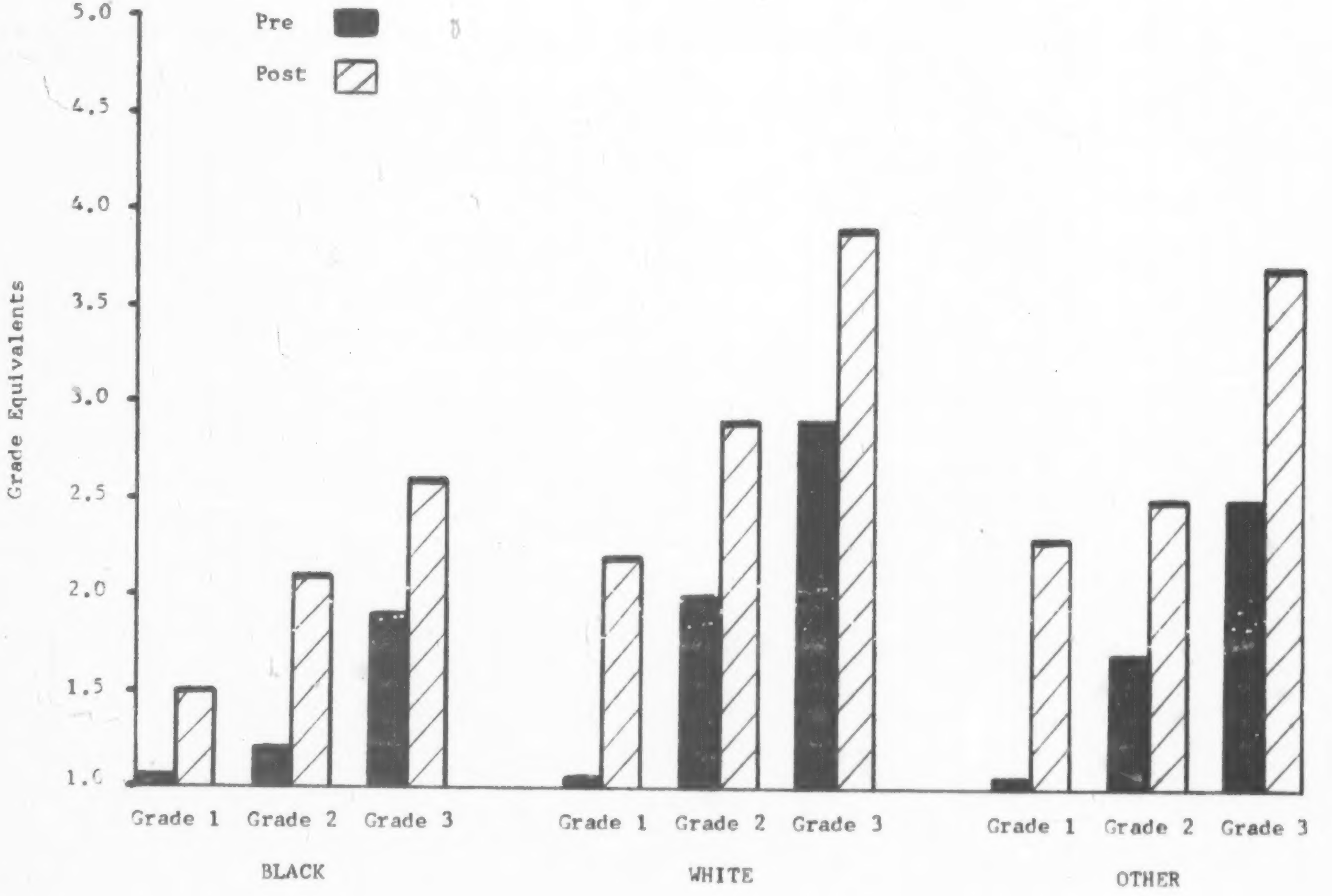
Grade	Ethnic Group	Raw Scores		F-Value*	N	Grade Equivalents[a)]		Growth
		Pre	Post			Pre	Post	
1	Black		30.22		49		1.5	+ 0.5
	White		40.15		34		2.2	+ 1.2
	Other		42.06		16		2.3	+ 1.3
2	Black	25.74	38.61	58.37*	30	1.2	2.1	+ 0.9
	White	37.10	48.83	61.15*	40	2.0	2.9	+ 0.9
	Other	34.10	44.00	20.43*	19	1.7	2.5	+ 0.8
3	Black	36.45	46.38	63.36*	46	1.9	2.6	+ 0.7
	White	48.88	53.69	16.32*	31	2.9	3.9	+ 1.0
	Other	44.59	52.55	42.25*	21	2.5	3.7	+ 1.2

*significant at .05 level

a) No pre-test was administered in grade one because the test was judged inappropriate; i.e., the child was required to use word analysis skills not taught prior to grade one. For purposes of the Growth data, children were assumed to have entered grade one with a grade equivalency of 1.0.

Figure 2

ETS WORD ANALYSIS
Developmental Data



As can be seen from the presentation above, for Black and White children reading comprehension achievement is substantially above word analysis achievement--a feature with crucial implications for classroom instruction. The authors want to stress that tests should be viewed not only as achievement tests but also as assessment instruments designed to aid instructional planning. If scores on the two tests are considered in conjunction and if the teacher notes a substantial difference between scores (such as cited above), this difference indicates that the basic problem in the instructional program is with decoding (word attack) rather than with reading comprehension. In other words, it may be merely an academic exercise to administer reading comprehension tests and report the scores to the teacher, whereas administering both tests might suggest a specific instructional program focusing on the word analysis problem rather than a generalized program focusing on improving reading comprehension.

Thus for Guide Question Two, Hypothesis A, post-test achievement scores differed significantly from pre-test achievement scores and reflected a minimum of one month's growth in word analysis achievement for each month of instructional time for all children, with the exception of Black children in grade one.

Findings by Socio-Economic Classification

Data reported in Table 7 indicate that post-test scores were significantly higher than pre-test scores for children in all SES classifications. These scores reflect grade equivalents representing one month's gain for each month of instructional time, with the exception of Low SES children in grades one and two. High SES children demonstrate growth exceeding one year at all grade levels; Mid SES children gain .8 of a year in each grade; scores of Low SES children reveal a much slower growth rate--specifically .5, .4, and .7 of a year for grades one, two, and three, respectively. By third grade the achievement discrepancy between the High and Low SES groups represents 1.2 years.

Comparing data in Table 3 and Table 7, it is noted that grade equivalents on word analysis generally tend to be considerably below grade equivalents on reading comprehension, suggesting greater difficulty in word attack skills for Low SES children. Combined use and interpretation of reading comprehension and word analysis instruments helps the teacher determine more precisely the nature of the reading-language difficulty existing in the classroom. Administering

2

Table 7

ETS WORD ANALYSIS

Developmental Data

(by Socio-Economic Classification)

Grade	S.-Econ. Group	Raw Scores Pre	Raw Scores Post	F-Value*	N	Grade Equivalents[a] Pre	Grade Equivalents[a] Post	Growth
1	High		39.42		31		2.1	+ 1.1
	Mid		34.68		51		1.8	+ 0.8
	Low		31.06		17		1.5	+ 0.5
2	High	37.63	50.78	60.84*	26	2.0	3.3	+ 1.3
	Mid	31.64	43.11	73.96*	52	1.6	2.4	+ 0.8
	Low	25.67	35.25	9.86*	11	1.4	1.8	+ 0.4
3	High	45.31	53.24	33.76*	28	2.5	3.7	+ 1.2
	Mid	44.48	50.61	39.44*	45	2.5	3.3	+ 0.8
	Low	34.54	45.46	36.91*	25	1.8	2.5	+ 0.7

*significant at .05 level

a) No pre-test was administered in grade one because the test was judged inappropriate; i.e., the child was required to use word analysis skills not taught prior to grade one. For purposes of the Growth data, children were assumed to have entered grade one with a grade equivalency of 1.0.

tests at the beginning of the school year, at mid-year, and at the conclusion of the school year can enable the teacher to effectively use test results as instructional assessment instruments for groups of children rather than as a final end-of-year measure of what children purportedly accomplished.

Thus post-test achievement scores differed significantly from pre-test achievement scores and reflected a minimum of one month's growth in word analysis achievement for each month of instructional time for all children, with the exception of the Low SES group in grades one, and two.

Hypothesis B, Experimental Data: Word analysis achievement scores for children in different ethnic and socio-economic classifications in the DELTA Treatment will differ significantly from the word analysis scores for children in the Control Design Treatment for grade one, grade two, and grade three.

Findings by Ethnic and Socio-Economic Classifications

When achievement gains presented in Table 8 were examined within ethnic group categories, two significant differences favoring the DELTA Treatment were identified; for Other children at grade one (.6 of a year) and at grade three (1.0 year). Six of the nine contrasts were trends in the direction favoring the DELTA Treatment; one difference favored the Control Design Treatment. The greatest trend differences occurred for Black and White students in grade one (.3 of a year each) and grade three (.2 of a year each).

Although Table 9 reveals no significant differences in achievement data blocked on SES classification, seven of the nine contrasts favored the DELTA Treatment, ranging from .3 of a year gain for Low SES children in grade one to .5 of a year gain for Mid SES children in grade three.

Thus for Guide Question Two, Hypothesis B, the experimental hypothesis related to word analysis achievement could be accepted only for Other children at grades one and three. On the other hand, thirteen of the eighteen contrasts favored the DELTA Treatment over the Control Design Treatment, suggesting a trend direction deserving additional exploration.

Table 8

ETS WORD ANALYSIS

Experimental Data

(by Ethnic Classification)

Grade	Ethnic Group	Raw Scores		F-Value*	N		Grade Equivalents		Growth
		Control Design Treatment	DELTA Treatment		Control Design Treat.	DELTA Treat.	Control Design Treat.	DELTA Treat.	
1	Black	26.03	30.22	2.48	32	49	1.2	1.5	+ 0.3
	White	36.02	40.15	2.35	43	34	1.9	2.2	+ 0.3
	Other	34.14	42.06	4.24*	22	16	1.7	2.3	+ 0.6
2	Black	36.79	36.90	.00	52	39	2.0	2.0	0.0
	White	48.39	47.65	.10	33	46	2.8	2.8	0.0
	Other	45.42	42.38	1.01	24	24	2.5	2.3	- 0.2
3	Black	44.10	46.63	1.69	21	57	2.5	2.7	+ 0.2
	White	53.25	53.54	.02	20	37	3.7	3.9	+ 0.2
	Other	44.60	52.28	4.21*	5	25	2.5	3.5	+ 1.0

*significant at .05 level

Table 9

ETS WORD ANALYSIS

Experimental Data

(by Socio-Economic Classification)

Grade	S.-Econ. Group	Raw Scores Control Design Treatment	Raw Scores DELTA Treatment	F-Value*	N Control Design Treat.	N DELTA Treat.	Grade Equivalents Control Design Treat.	Grade Equivalents DELTA Treat.	Growth
1	High	35.83	39.42	1.26	29	31	1.9	2.1	+ 0.2
	Mid	31.54	34.68	1.73	57	51	1.6	1.8	+ 0.2
	Low	26.91	31.06	.75	11	17	1.2	1.5	+ 0.3
2	High	45.19	49.74	3.06	31	34	2.5	3.1	+ 0.6
	Mid	44.54	41.50	2.22	48	57	2.5	2.3	- 0.2
	Low	35.37	32.35	.90	30	17	1.8	1.6	- 0.2
3	High	51.29	52.85	.40	14	34	3.3	3.7	+ 0.4
	Mid	48.43	51.04	1.77	23	55	2.8	3.3	+ 0.5
	Low	42.44	44.73	.59	9	30	2.3	2.5	+ 0.2

*significant at .05 level

Basic Guide Question Three--Listening Comprehension Achievement

What gain in listening comprehension achievement could be expected for children in different ethnic and socio-economic classifications in grade one, grade two, and grade three?

Hypothesis A, Developmental Data: Pre-post achievement scores will differ significantly and reflect a minimum of one month's growth in listening comprehension achievement for each month of instructional time for children in various ethnic and socio-economic classifications at each grade level.

Findings by Ethnic Classification

Table 10 presents data on listening comprehension achievement, with all post-test scores differing significantly from pre-test scores, with the exception of Other children in grade two. Additionally, children in all ethnic groups achieved a minimum of one month's growth for each month of instruction, with the exception of Black children in first grade.

Black youngsters exhibit greatest gains in grades two (1.1 years) and three (1.0 year), whereas gains by White and Other children are greatest in grade one (2.0 and 1.6 years, respectively) and remain at a high level in grades two (1.1 and 1.0 years respectively) and three (.9 and 1.0 years, respectively).

Examination of Figure 3 again reveals a pattern of practical significance in first grade scores by ethnic group: the achievement of Black children is lower than that of White and Other children by 1.9 and 1.5 years, respectively. As will be noted in the discussion related to the next guide question, the reading readiness achievement level of Black children in kindergarten and first grade is substantially lower than that of White and Other children. Similarities in Black children's achievement patterns for listening comprehension and reading readiness may be attributed to several factors including (1) unfamiliarity with labels and concepts used in test situations--i.e., inability to understand the nature of the achievement task; (2) unfamilarity with the actual labels and concepts being evaluated by the instrument; (3) difficulty in attending to and processing oral stimuli presented by the teacher in standard English; (4) difficulty in responding to and correctly interpreting picture test items--a factor possibly resulting from too little pre-school experience with picture books; and (5) little understanding of test-taking behavior--e.g., elimination of obvious incorrect response (detractor) to enhance the possibility of selecting the correct response.

Table 10

ETS LISTENING COMPREHENSION

Developmental Data

(by Ethnic Classification)

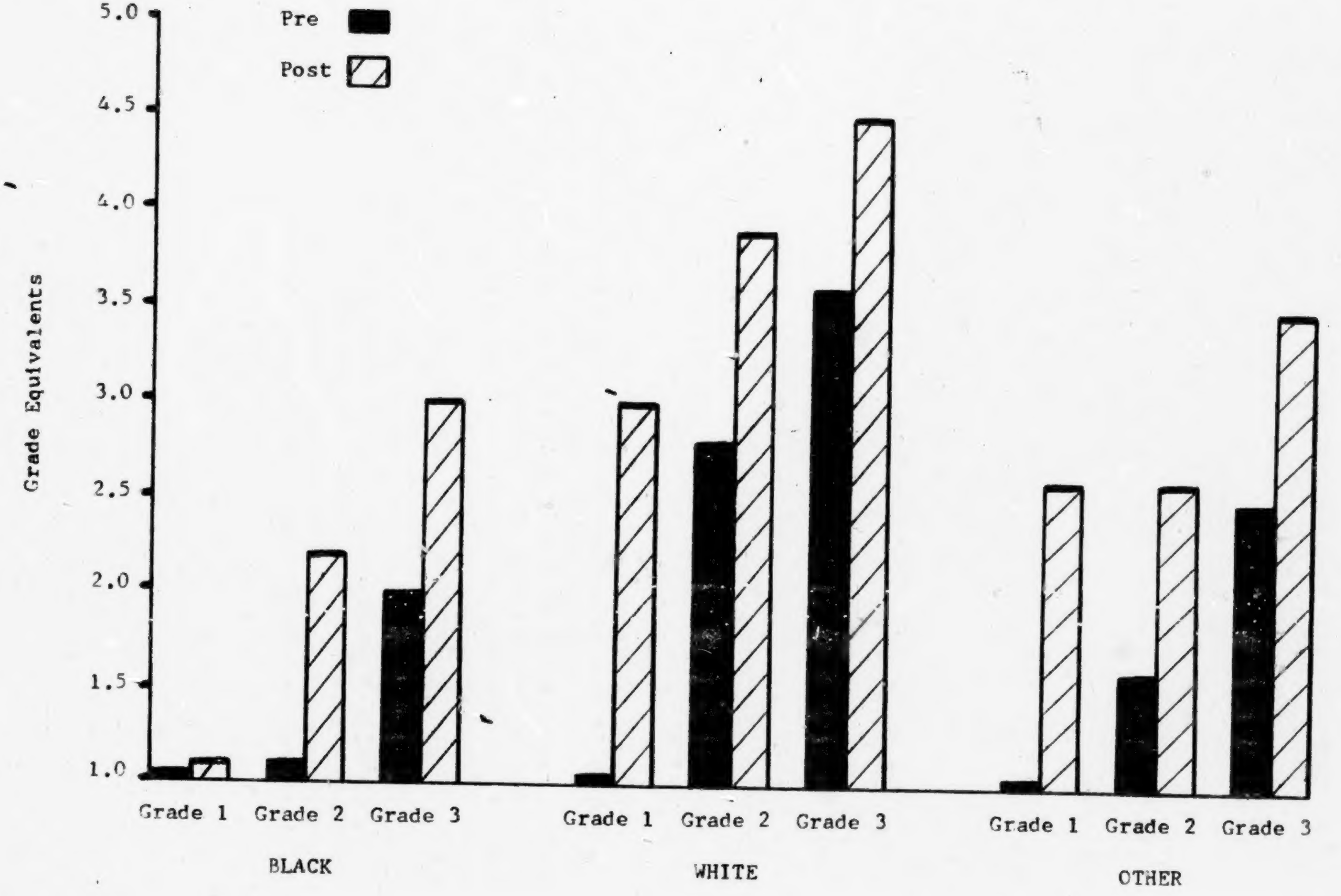
Grade	Ethnic Group	Raw Scores		F-Value*	N	Grade Equivalents[a]		Growth
		Pre	Post			Pre	Post	
1	Black		30.45		38		1.1	+ 0.1
	White		40.23		31		3.0	+ 2.0
	Other		37.83		18		2.6	+ 1.6
2	Black	32.94	35.86	10.24*	35	1.1	2.2	+ 1.1
	White	40.70	43.08	8.47*	39	2.8	3.9	+ 1.1
	Other	36.15	38.15	3.39	19	1.6	2.6	+ 1.0
3	Black	28.42	33.59	45.83*	52	2.0	3.0	+ 1.0
	White	36.16	41.31	43.69*	31	3.6	4.5	+ 0.9
	Other	29.63	35.58	25.91*	23	2.5	3.5	+ 1.0

*significant at .05 level

a) No pre-test was administered in grade one because the test was judged inappropriate; i.e., the child was required to use test direction skills not taught prior to grade one. For purposes of the Growth data, children were assumed to have entered grade one with a grade equivalency of 1.0.

Figure 3

ETS LISTENING COMPREHENSION
Developmental Data



Thus, as suggested previously, although Black children enter school with a decided handicap relative to the curriculum, the fact that in grades two and three Black youngsters gained 1.1 and 1.0 years, respectively, in listening achievement indicates that they readily adjust to the school setting. However, the early achievement difficulties of Black children require that the school consider kindergarten and grade one variations by adjusting curriculum to meet the language and reading needs of individual youngsters. During classroom instruction and when giving directions, teachers should pay special attention to labels and concepts which may be new to some children.

Thus for Guide Question Three, Hypothesis A, it was concluded that post-test listening comprehension scores differed significantly from pre-test scores for all children, with the exception of Other children in grade two. In addition the scores reflected a minimum of one month's growth in listening comprehension achievement for each month of instructional time for all children, with the exception of Black children in grade one.

Findings by Socio-Economic Classification

As indicated by Table 11, all contrasts rearched the required level of significance, with the exception of Low SES children in grade two; and all groups exhibited a minimum of one month's growth for each month of instruction, with the exception of Low SES children in grade one.

High SES youngsters achieved the greatest gain in grade one (1.8 years) with substantial but decreasing gains in grades two and three (1.4 and 1.3 years, respectively). Mid SES children achieved their greatest gains in grades two (1.0 year) and three (.9 of a year) with least growth in grade one (.7 of a year). The Low SES group gradually increased in achievement from grade one (.3 of a year) through grade two (.6 of a year) to grade three (.9 of a year). By grade three, the discrepancy between scores of High and Low SES children represents 1.3 years in listening comprehension achievement. Although part of this difference can undoubtedly be attributed to differences in learning rates, the relationship between the home environment and school curriculum deserves careful study. Many factors discussed above under findings by ethnic classification also require consideration in relation to SES variation.

Table 11

ETS LISTENING COMPREHENSION

Developmental Data

(by Socio-Economic Classification)

Grade	S.-Econ. Group	Raw Scores Pre	Raw Scores Post	F-Value*	N	Grade Equivalents[a] Pre	Grade Equivalents[a] Post	Growth
1	High		39.39		28		2.8	+ 1.8
	Mid		34.42		45		1.7	+ 0.7
	Low		30.93		14		1.3	+ 0.3
2	High	40.17	43.38	8.88*	28	2.5	3.9	+ 1.4
	Mid	35.98	38.40	15.13*	54	1.6	2.6	+ 1.0
	Low	32.75	33.92	.42	11	1.1	1.7	+ 0.6
3	High	31.83	38.53	38.69*	29	2.9	4.2	+ 1.3
	Mid	32.32	36.74	45.70*	49	2.9	3.8	+ 0.9
	Low	27.69	33.21	29.92*	28	2.0	2.9	+ 0.9

*significant at .05 level

[a] No pre-test was administered in grade one because the test was judged inappropriate; i.e., the child was required to use test direction skills not taught prior to grade one. For purposes of the Growth data, children were assumed to have entered grade one with a grade equivalency of 1.0.

Thus it was concluded that post-test achievement scores differed significantly from pre-test scores for children in all SES groups, with the exception of Low SES children in grade two. The achievement gain of one month for each month of instructional time was also realized for all youngsters except members of the Low SES group at grade one.

Hypothesis B, Experimental Data: Listening comprehension achievement scores for children in different ethnic and socio-economic classifications in the DELTA Treatment will differ significantly from the listening comprehension scores for children in the Control Design Treatment for grade one, grade two, and grade three.

Findings by Ethnic and Socio-Economic Classifications

Contrasts by ethnic classification revealed one statistically significant difference favoring the DELTA Treatment over the Control Design Treatment: in grade three Black children achieved .6 of a year growth. From Table 12, trend differences are also apparent: favoring the DELTA Treatment are eight of the nine contrasts--with gains ranging from .3 of a year to 1.0 year.

These findings parallel the developmental data in that no growth pattern trend appears for Black children in grade one, contrasting with White and Other children who gained .5 of a year and 1.0 year, respectively, in grade one. At grade two all ethnic groups reflected growth of .3 of a year; at grade three Black children exhibited a gain of .6 of a year whereas both White and Other groups demonstrated gains of .7 of a year.

Socio-economic contrasts reveal one statistically significant difference favoring the DELTA Treatment--for High SES children in grade two--with the difference reflecting growth of 1.0 year for listening comprehension achievement. Seven of the nine contrasts, although not significant, favored the DELTA Treatment over the Control Design Treatment.

As shown in Table 13, the greatest growth was observed with High SES children, achieving the following gains: .5 of a year, 1.0 year, and .7 of a year in grades one, two, and three, respectively. Low SES youngsters demonstrated positive trend gains at grades one (.3 of a year), and three (.4 of a year) with no gain at grade two. Mid SES children exhibited gains of .3 of a year at grade three, .3 of a year favoring the Control Design Treatment at grade two, and only .1 of a year at grade one. By grade three achievement variation between High and Low SES children represents a difference of 1.2 years.

Table 12

ETS LISTENING COMPREHENSION

Experimental Data

(by Ethnic Classification)

Grade	Ethnic Group	Raw Scores		F-Value*	N		Grade Equivalents		Growth
		Control Design Treatment	DELTA Treatment		Control Design Treat.	DELTA Treat.	Control Design Treat.	DELTA Treat.	
1	Black	33.00	30.45	2.21	31	38	1.1	1.1	0.0
	White	39.81	40.23	.06	27	31	2.5	3.0	+ 0.5
	Other	35.75	37.83	.82	20	18	1.6	2.6	+ 1.0
2	Black	29.00	31.00	1.84	46	33	2.2	2.5	+ 0.3
	White	36.26	38.50	2.10	31	40	3.6	3.9	+ 0.3
	Other	29.52	32.29	2.10	23	21	2.5	2.8	+ 0.3
3	Black	31.10	34.43	4.40*	21	38	2.6	3.2	+ 0.6
	White	38.17	41.23	2.91	18	31	4.1	4.8	+ 0.7
	Other	32.00	35.91	1.72	5	18	2.9	3.6	+ 0.7

*significant at .05 level

Table 13

ETS LISTENING COMPREHENSION

Experimental Data

(by Socio-Economic Classification)

Grade	S.-Econ. Group	Raw Scores		F-Value*	N		Grade Equivalents		Growth
		Control Design Treatment	DELTA Treatment		Control Design Treat.	DELTA Treat.	Control Design Treat.	DELTA Treat.	
1	High	38.52	39.39	.19	29	28	2.3	2.8	+ 0.5
	Mid	36.44	34.42	1.61	48	45	1.6	1.7	+ 0.1
	Low	31.36	33.93	.02	11	14	1.0	1.3	+ 0.3
2	High	31.61	38.40	13.27*	28	30	2.9	3.9	+ 1.0
	Mid	27.49	26.00	.30	47	53	1.7	1.4	- 0.3
	Low	17.92	19.18	.05	25	11	1.0	1.0	0.0
3	High	34.92	38.71	2.74	12	28	3.5	4.2	+ 0.7
	Mid	34.74	37.09	1.92	23	47	3.5	3.8	+ 0.3
	Low	31.33	34.44	1.44	9	25	2.6	3.0	+ 0.4

*significant at .05 level

In regard to Hypothesis B of Guide Question Three, the authors concluded that the experimental hypothesis related to listening comprehension achievement could be accepted for Black children in grade three and for High SES children in grade two. However, fifteen of the eighteen contrasts produced trends favoring the DELTA Treatment over the Control Design Treatment, with trend gain differences ranging from .1 of a year to 1.0 year and suggesting that the impact of the DELTA Treatment is substantially greater than one might assume by examining the statistically significant gains in isolation. The striking parallel in these data to those reported earlier is the low achievement gain by first grade Black children and the achievement discrepancy in grade equivalents between Black children and White and Other children in grade three. In addition, between High and Low SES children an achievement discrepancy is obvious at the conclusion of third grade.

Basic Guide Question Four--Reading Readiness Achievement

What gain in reading readiness achievement could be expected for children in different ethnic and socio-economic classifications in kindergarten and grade one?

Hypothesis A, Developmental Data: Pre-post reading readiness achievement scores will differ significantly during the instructional period for children in various ethnic and socio-economic classifications in kindergarten and grade one.

Findings by Ethnic Classification

To measure the reading readiness of children in kindergarten and grade one, the Metropolitan Readiness Test was administered--pre-test data collected with Form A and post-test data with Form B. The following interpretation from the Manual of Directions[1] explains the raw score performance on the instrument.

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[1] Manual of Directions, Metropolitan Readiness Tests, New York, Harcourt, Brace and World, Inc., 1969, p. 11.

Letter Rating and Readiness Status Corresponding to
Various Ranges of Total Score on Form A or Form B

Score Range*	Letter Rating	Readiness Status	Significance
Above 76	A	Superior	Apparently very well prepared for first-grade work. Should be given opportunity for enriched work in line with abilities indicated.
64-76	B	High Normal	Good prospects for success in first-grade work provided other indications, such as health, emotional factors, etc., are consistent.
45-63	C	Average	Likely to succeed in first-grade work. Careful study should be made of the specific strengths and weaknesses of pupils in this group and their instruction planned accordingly.
24-44	D	Low Normal	Likely to have difficulty in first-grade work. Should be assigned to slow section and given more individualized help.
Below 24	E	Low	Chances of difficulty high under ordinary instructional conditions. Further readiness work, assignment to slow sections, or individualized work is essential[1]

*These levels are set up in terms of standard deviation distances. B, C, and D are each 1.0 S.D. in width. A and E are the extremes beyond 1.5 S.D. above and below the mean, respectively. Level A includes the top 7 percent of the standardization group, Level B the next 24 per cent, Level C the middle 38 per cent, Level D the next 24 per cent, and Level E the lowest 7 per cent.

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[1] Ibid.

All pre-post differences were found to represent statistically significant gains, as shown in Table 14. For each ethnic group first grade scores reached at least the "High Normal" level on the post-test; kindergarten scores reached at least the "Average" level. However, the scores of Black children were at least one "letter level" (Level C and B) below White and Other children (Level B and A) in kindergarten and first grade, respectively.

The data further reveal a starting point substantially lower for Black children than for White and Other children in both kindergarten and grade one: Figure 4 indicates that post-test raw scores of Black children fail to reach the level of pre-test raw scores of White and Other children. This discrepancy demands that the kindergarten and first grade curriculum be altered to meet reading readiness needs of Black children. In addition, provisions for involving parents in the school curriculum would enable parents to better understand how informal readiness activities contribute to the hidden home curriculum. Educators should also devote attention to pre-kindergarten nursery school programs with a wide range of language and auditory-visual experiences constituting a readiness base for reading instruction. These experiences should be formulated to relate specifically to the language used in the home, and community environments of children involved. Furthermore, television programs such as Sesame Street and Misterrogers should be analyzed for labels, concepts, and auditory-visual perceptual dimensions which can be reinforced in the school and home curriculum to more effectively develop reading readiness. The researchers are not recommending that experiences from the "hidden home curriculum" of White and Other children be transposed into the homes of Black children but rather that experiences already existing are not being utilized or developed to increase reading readiness levels of Black children. The language labels, concepts, and experiences which Black children bring to the school setting must also be incorporated into the reading readiness curriculum.

Thus for Guide Question Four, Hypothesis A, all pre-post reading readiness achievement scores differed significantly during the instructional period for children in all ethnic classifications. In kindergarten and grade one, distinct and substantial discrepancies were noted between achievement levels of Black children and of White and Other children. The practical significance of these discrepancies is realized by considering previous discussions on the discrepancy pattern continuing for Black children at grades one, two, and three in reading comprehension, word analysis, and listening comprehension achievement.

Table 14

METROPOLITAN READING READINESS

Developmental Data

(by Ethnic Classification)

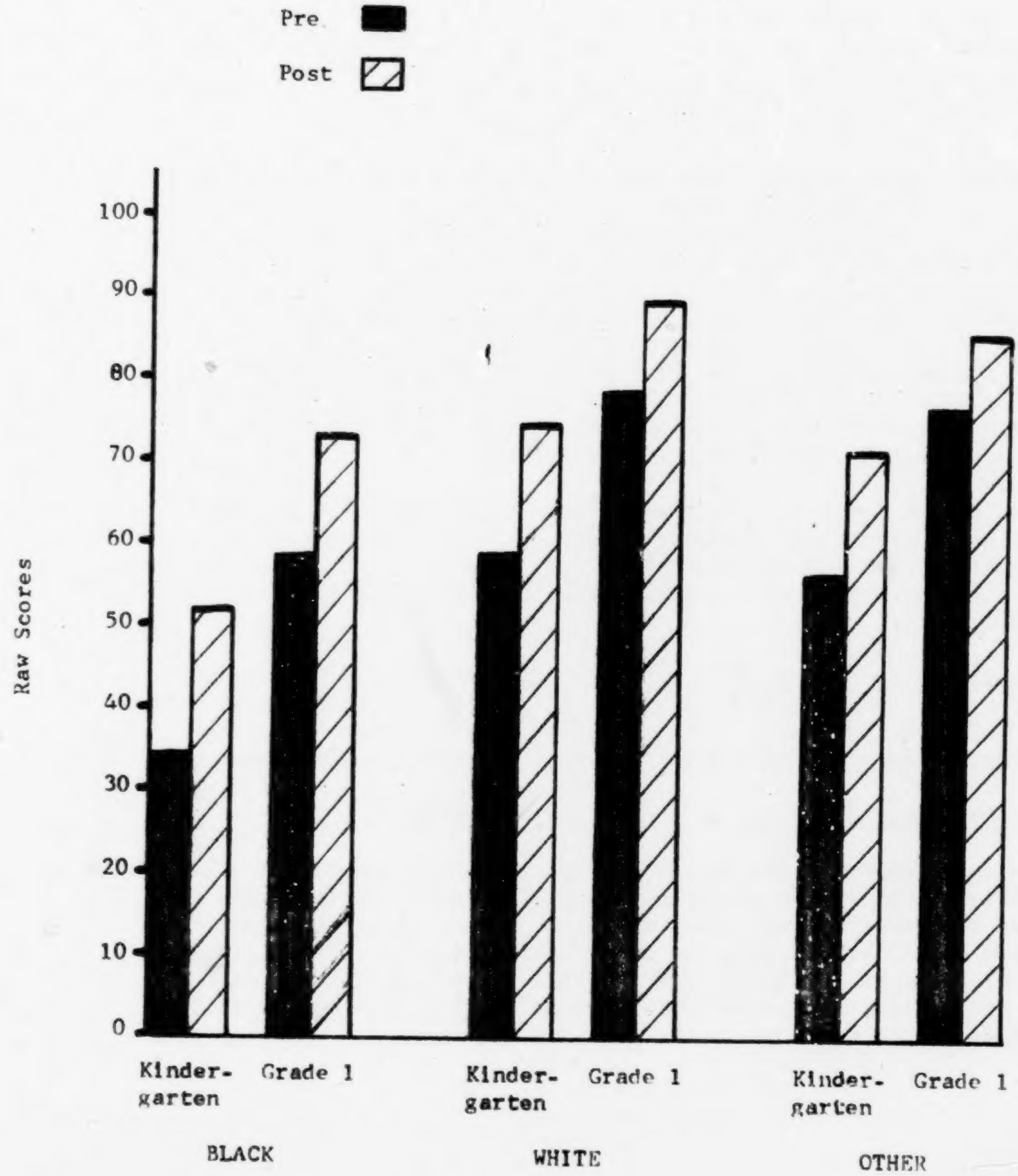
Grade	Ethnic Group	Raw Scores		F-Value*	N	Readiness Levels[a)]	
		Pre	Post			Pre	Post
K	Black White Other	34.58 58.22 56.10	51.67 74.22 71.30	113.64* 60.22* 23.91*	35 31 9	D C C	C B B
1	Black White Other	58.46 78.50 76.61	72.85 89.07 85.44	119.24* 64.80* 16.89*	45 29 17	C A A	B A A

*significant at .05 level

a)
A = 77-102 (Superior)
B = 64-76 (High Normal)
C = 45-63 (Average)
D = 24-44 (Low Normal)
E = 0-23 (Low)

Figure 4

METROPOLITAN READING READINESS
Developmental Data



Findings by Socio-Economic Classification

As indicated by Table 15, all contrasts represented statistically significant differences with children in all SES classifications achieving definite gains in both kindergarten and grade one. As expected, on the kindergarten post-test High SES children scored in the "High Normal" range demonstrating good potential for reading success; Mid and Low SES youngsters reached "average" achievement levels suggesting they are "likely to succeed" in first-grade reading instruction. By the end of grade one (post-test) all children reached the "Superior" level of performance; however, as entering first-graders, the Low SES group had reached only the "Average" level.

The data again reveal achievement discrepancies at kindergarten and grade one with post-test scores of Low SES children only equaling or slightly exceeding pre-test scores of High SES children. The previous discussion and interpretation of discrepancies on the basis of ethnic classification should also be applied to this finding by SES classification. From examining Table 15, it appears that in grade one Low SES children achieved relatively greater gains in reading readiness (from a C pre-test rating to an A post-test rating) than did either Mid or High SES children. Also reflected in the raw scores, this achievement gain indicates a positive effect on reading readiness by the first-grade curriculum.

Reading readiness data manifest gains significant from both a statistical and practical viewpoint. Although the achievement discrepancy between Low and High SES groups persisted, in grade one Low SES children achieved relatively greater growth than did children in the Mid or High SES groups.

Hypothesis B, Experimental Data: Reading readiness achievement scores for children in different ethnic and socio-economic classifications in the DELTA Treatment will differ significantly from the readiness scores for children in the Control Design Treatment for kindergarten.

Findings by Ethnic and Socio-Economic Classifications

The quasi-experimental design as described in Chapter V, provided for contrasts only at the kindergarten level because contrasts for grade one experimental data would have required pre-test readiness scores for grade two children for comparison with post-test readiness scores for grade one children; due to the limited time for evaluation and the test's inappropriateness for second grade youngsters, this comparison wasnnot included in the design.

Table 15

METROPOLITAN READING READINESS

Developmental Data

(by Socio-Economic Classification)

Grade	S.-Econ. Group	Raw Scores		F-Value*	N	Readiness Levels[a)]	
		Pre	Post			Pre	Post
K	High	56.76	70.31	67.57*	28	C	B
	Mid	42.70	59.81	101.81*	46	D	C
	Low	36.92	58.00	32.49*	11	D	C
1	High	77.17	86.30	42.38*	29	A	A
	Mid	65.00	77.80	103.22*	49	B	A
	Low	61.21	77.29	51.27*	13	C	A

*significant at .05 level

a)
A = 77-102 (Superior)
B = 64-76 (High Normal)
C = 45-63 (Average)
D = 24-44 (Low Normal)
E = 0-23 (Low)

Comparisons by ethnic classification revealed one significant difference favoring the Control Design Treatment for Black kindergarten children. Trend differences also favored the Control Design Treatment for White and Other children although raw score differences shown in Table 16 indicate that gains did not exceed six raw score points and are therefore of limited practical significance. The shift in letter indicating readiness level for each treatment results from Control Design Treatment scores in the low area of the letter A range and DELTA Treatment scores in the high area of the letter B range. Again, marked achievement discrepancies were present in contrasting Black children with White and Other children.

The analysis by SES classification revealed one significant difference favoring the Control Design Treatment for High SES children and raw score trend differences also slightly favored the Control Design Treatment. For both treatment groups, the most notable feature was again the achievement variation between High and Low SES children.

Based on significant differences and trends related to Hypothesis B of Guide Questions One, Two, and Three, one would expect the kindergarten readiness findings to favor the DELTA Treatment over the Control Design Treatment. Of course, this expectation was speculative but nevertheless caused the authors to examine the possible explanations for the unanticipated results favoring the Control Design Treatment at the kindergarten level. However slight, the difference may be due to the DELTA Treatment's focus on readiness and reading achievement in grades one, two, and three. Although the project staff did consider kindergarten, curriculum planning at this level was emphasized less than curriculum planning for grades one, two, and three. Future model-building efforts should include an emphasis on kindergarten curriculum development and, as previously discussed, additional attention to readiness-experience programs at the pre-kindergarten level.

Thus for Guide Question Four, Hypothesis B could not be accepted--the results, although minimal, consistently favor the Control Design Treatment. This finding, inconsistent with previous findings, stresses the need for intensive planning in future curriculum development at the kindergarten and pre-kindergarten levels.

Basic Guide Question Five--Achievement Patterns

What achievement patterns are present for reading comprehension, word analysis, and listening comprehension achievement scores for children in different ethnic classifications in grade one, grade two, and grade three?

Table 16

METROPOLITAN READING READINESS

Experimental Data

(by Ethnic Classification)

Grade	Ethnic Group	Raw Scores Control Design Treatment	Raw Scores DELTA Treatment	F-Value*	N Control Design Treat.	N DELTA Treat.	Readiness Levels[a] Control Design Treat.	Readiness Levels[a] DELTA Treat.
K	Black	57.20	51.59	4.47*	59	44	C	C
	White	78.03	72.43	3.22	36	37	A	B
	Other	76.68	70.27	1.61	19	11	A	B

(by Socio-Economic Classification)

Grade	S.-Econ. Group	Raw Scores Control Design Treatment	Raw Scores DELTA Treatment	F-Value*	N Control Design Treat.	N DELTA Treat.	Readiness Levels[a] Control Design Treat.	Readiness Levels[a] DELTA Treat.
K	High	77.17	68.94	4.69*	35	33	A	B
	Mid	63.44	58.73	2.28	59	44	C	C
	Low	59.85	57.60	.18	20	15	C	C

*significant at .05 level

a)
A = 77-102 (Superior)
B = 64-76 (High Normal)
C = 45-63 (Average)
D = 24-44 (Low Normal)
E = 0-23 (Low)

Hypothesis A, Relative Pattern Differences: Achievement patterns will be identifiable by examining the relative differences among achievement scores in reading comprehension, word analysis, and listening comprehension.

Findings on Achievement Patterns

Utilizing data from previously presented tables, findings on achievement patterns represent only developmental data, reflecting pre-post scores on identical groups of children. From an extensive inspection of pre-post scores, the researchers identified six exclusive patterns,[1] indicating relative achievement strengths and weaknesses exhibited by a specific group of children. Such information--the first step toward designing an instructional program to meet children's needs--offers the classroom teacher an important instructional tool.

As presented in Figure 5, the six representative patterns do not stipulate grade-level achievement because the purpose was to graphically display relative strength or relative weakness in each of the three areas, regardless of position in relation to expected age-grade norms. In other words, instruction must relate to children's needs rather than to age-grade norm needs which, for the most part, will be obvious to the teacher. The following discussion is keyed to each representative pattern.

Pattern 1: Listening comprehension relatively strong; reading comprehension and word analysis relatively weak.

In this pattern the achievement scores reflect good oral language skills. The children listen well and comprehend what is heard but are not able to transfer oral language skill to the comprehension of written language. This may result from an inability to decode written words for comprehension purposes. The teacher should concentrate on the weakest area (reading comprehension or word analysis) in order to raise the reading comprehension or word analysis ability to the level of oral comprehension ability.

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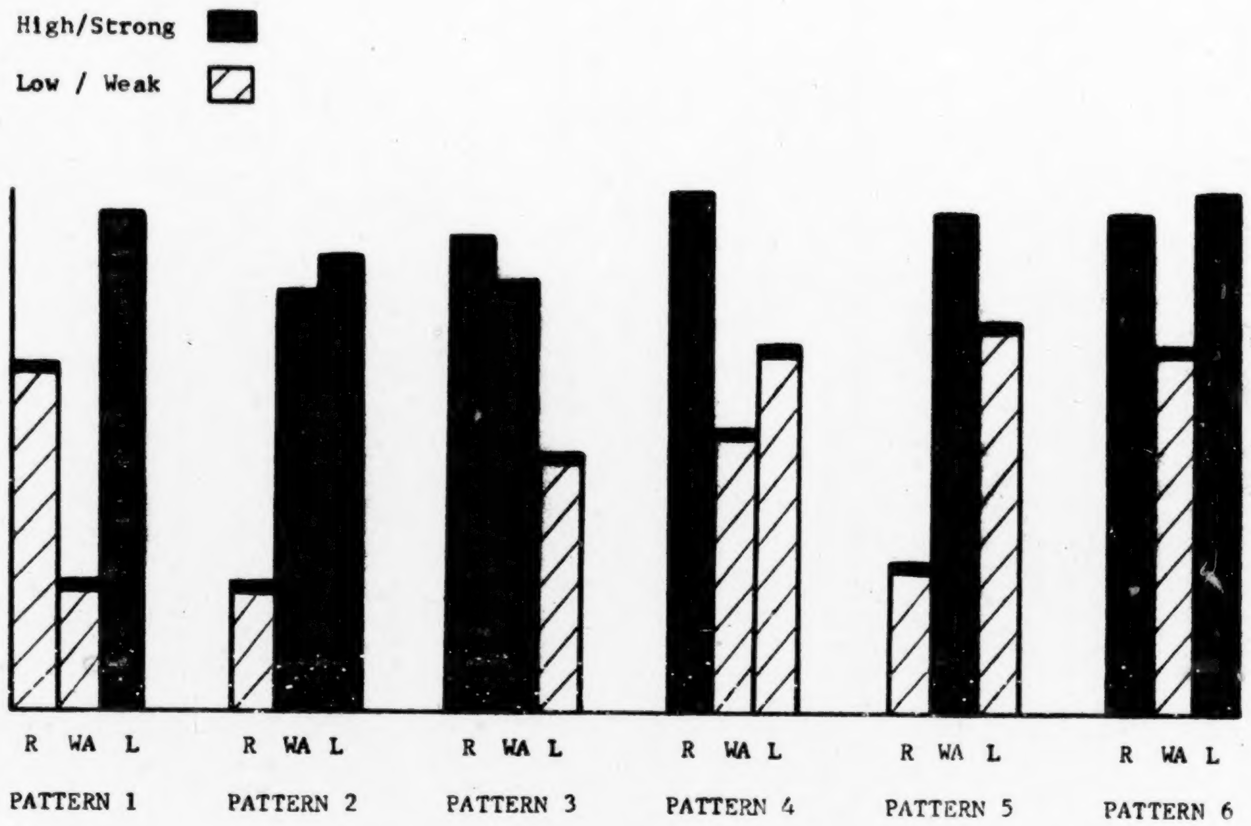
[1] Two additional patterns were observed: high achievement in all areas and low achievement in all areas. Although these patterns will undoubtedly occur in the classroom, the only interpretation possible is that children are performing at relatively high or relatively low levels in all areas.

Figure 5

ETS READING COMPREHENSION, WORD ANALYSIS, AND LISTENING COMPREHENSION
Six Representative Patterns



R = Reading Comprehension
WA = Word Analysis
L = Listening Comprehension

Pattern 2: Listening comprehension and word analysis relatively strong; reading comprehension relatively weak.

In this case the children seem incapable of *processing* written language. Although good oral comprehension skill (strong listening comprehension) is evident as is the ability to decode small isolated segments of written language (strong word analysis), the children perform poorly when reading and comprehending word groups clustered into sentences. This pattern illustrates the value of group instructional testing. Without a word analysis assessment, the teacher may continue to drill children on decoding small segments, not realizing that the problem is inability to *process* written language using context and graphic intonation clues.

Pattern 3: Reading comprehension and word analysis relatively strong; listening comprehension relatively weak.

This pattern emphasizes that the graphic and oral presentations are actually comparing the *relationship* of one skill to another. Previous data indicated that in grades one and two Black children achieved low listening comprehension scores compared to reading comprehension and word analysis scores; however, all three scores were well below expected age-grade norms. In other words, these children were *relatively* strong in reading comprehension and word analysis and *relatively* weak in listening comprehension. Pattern three indicates that children would benefit from increased oral language practice and experience (e.g., oral attending, identifying key meaning elements rather than many details) to enhance comprehension of a functional variety of language at the formal oral level.

Pattern 4: Reading comprehension relatively strong; word analysis and listening comprehension relatively weak.

This pattern frequently occurred in the study even though it seems contradictory since one typically assumes that strong listening comprehension and word analysis skills *lead* to a strong reading comprehension skill. The researchers did not conduct an in-depth analysis of children exhibiting this pattern,but it appears to result from introverted children who read well, relying heavily on *context clues*; the children may at the same time exhibit characteristics described in Pattern 3--i.e., day-dreaming during a listening comprehension test (low oral attending) and performing poorly without context clues (word analysis).

Pattern 5: Word analysis relatively strong; listening comprehension and reading comprehension relatively weak.

In this case the children exhibit good word analysis skills but are weak in comprehension of both written and oral language, seeming unable to apply word analysis skills to sentences or clusters of sentences in a reading comprehension test. The pattern suggests the children need extensive help in developing the broad skill of comprehension rather than the more narrow skill of word analysis.

Pattern 6: Reading comprehension and listening comprehension relatively strong; word analysis relatively weak.

This pattern describes children who possess a high degree of oral attending and who derive much information from context in both listening and reading. Although it appears as if these individuals habitually make lucky guesses in responses, the pattern is too consistent to be based only on guesswork. Without context clues (word analysis), performance is at a relatively low level.

It was concluded that patterns can be identified reflecting relative differences among achievement levels in reading comprehension, word analysis, and listening comprehension. Furthermore, these achievement patterns should be of significant practical value to the teacher as she determines the variations within her classroom and then attempts to develop an appropriate instructional program based on the evaluation.

Hypothesis B, Achievement Patterns and Ethnic Classification: Achievement patterns will be similar for the various ethnic groups studied.

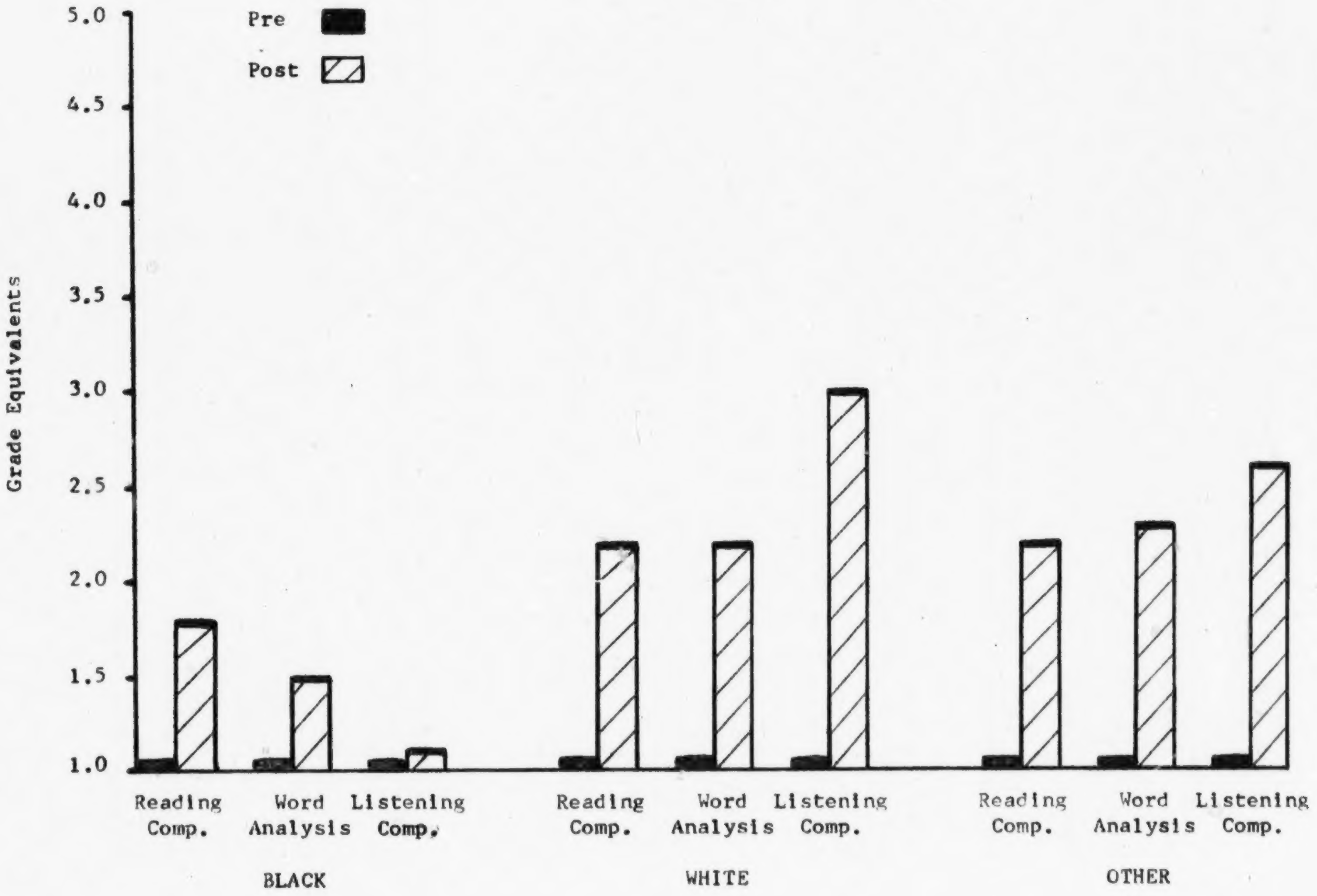
Findings on Achievement Patterns and Ethnic Classification

The graphic presentation of pre-post developmental data indicates that achievement patterns generally differed for the ethnic groups at various grade levels.

Grade one data, presented in Figure 6, reveal that achievement levels for Black children follow Pattern 3, exhibiting weakness in listening comprehension and relative strength in word analysis and reading comprehension; White and Other children follow a pattern which most closely approximates Pattern 1, with strong listening comprehension and relatively weak reading comprehension and word analysis achievement. Thus, for first grade the findings demonstrate that Black children seem to experience difficulty attending to oral language at a formal level. Previous discussion of this difficulty

Figure 6

ETS READING COMPREHENSION, WORD ANALYSIS, AND LISTENING COMPREHENSION
Developmental Data
Grade 1



suggested such problem areas as dialect and functional variety interferences, failure to understand the nature of the task, and lack of understanding of labels and concepts being evaluated by the test instrument. In contrast, the pattern revealed by White and Other children suggests reading comprehension scores may be depressed by the children's inability to decode written words so that the written forms may, in turn, be translated for comprehension purposes to oral counterparts.

For pre-test scores in grade two, as shown by Figure 7, patterns parallel those just discussed for Black and White children, whereas Other children reflect nearly equal achievement on all three skills. Post-test scores for Black children reveal a pattern very similar to the pattern of Other children--demonstrating equal performance on the three variables although, comparatively, the scores are depressed. Post-test scores for White children follow Pattern 1, which also occurred in grade one.

As presented in Figure 8, pre-test scores for Black children in grade three closely parallel the pattern of second grade scores, with similar but depressed achievement in all areas. This same pattern again occurs--although at a higher achievement level--for Other children. Pre-test scores for White children follow the previously discussed Pattern 6, showing relatively high reading and listening comprehension and relatively low word analysis skill, explained by the absence of context clues in the decoding instrument and a relative inability to decode words in isolation.

Third grade post-test scores indicate that Black and White children have a very similar achievement pattern, paralleling the pre-test pattern for White children; this pattern suggests that at grade three both Black and White children would benefit from a greater emphasis on word analysis skills. On post-test scores the Other children again achieved similar levels for each language skill.

Thus, rather than the hypothesized similarity, achievement patterns actually varied by ethnic group at each grade level. In grade one Black children exhibited relative weakness in listening comprehension but relative strength in reading comprehension and word analysis; White and Other children exhibited relatively strong listening comprehension achievement but relatively weak reading comprehension and word analysis achievement. In grade two post-tests reveal that Black and Other children demonstrated similar patterns on reading comprehension, word analysis, and listening comprehension; however, in overall achievement the two groups

Figure 7

ETS READING COMPREHENSION, WORD ANALYSIS, AND LISTENING COMPREHENSION
Developmental Data
Grade 2

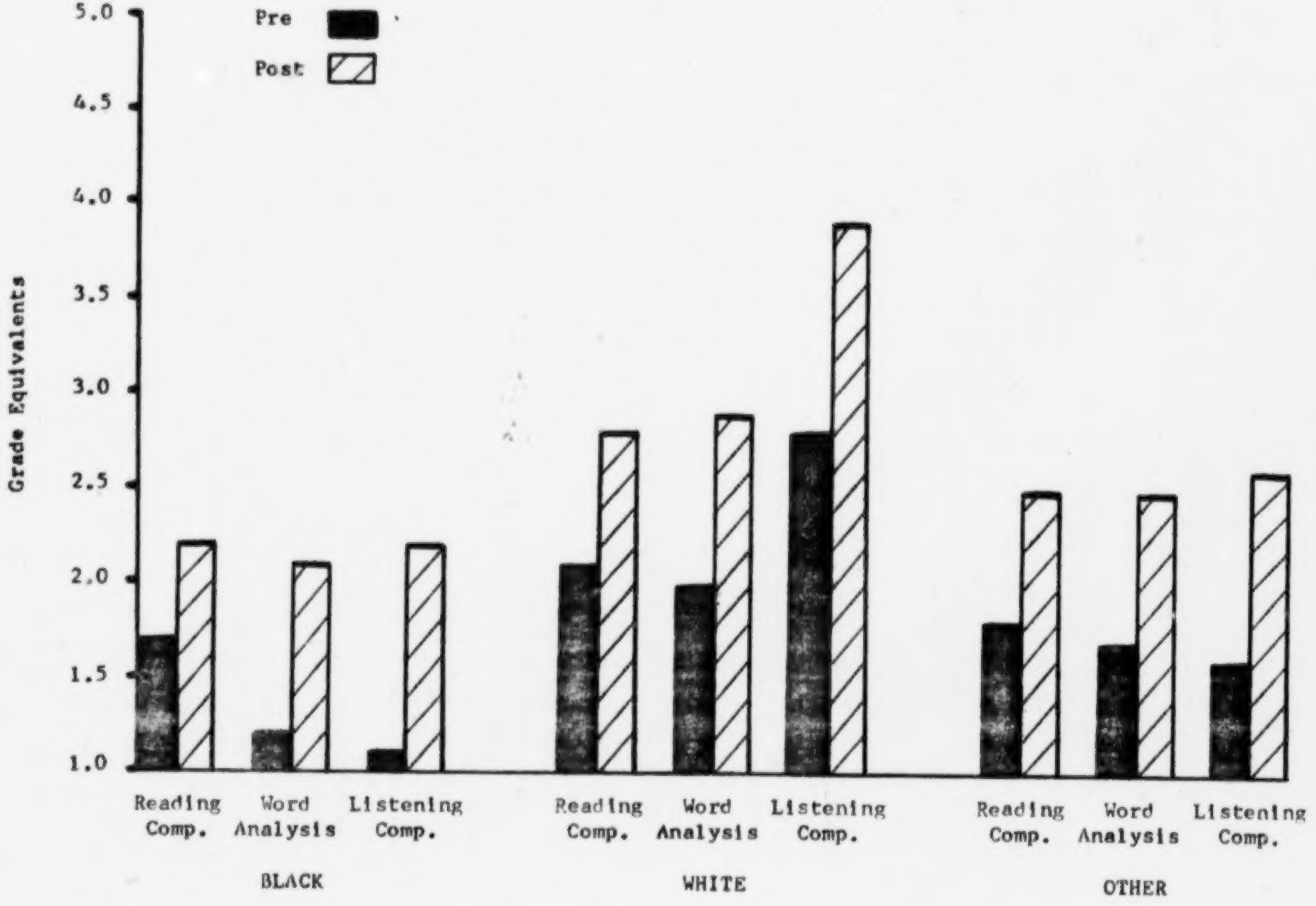
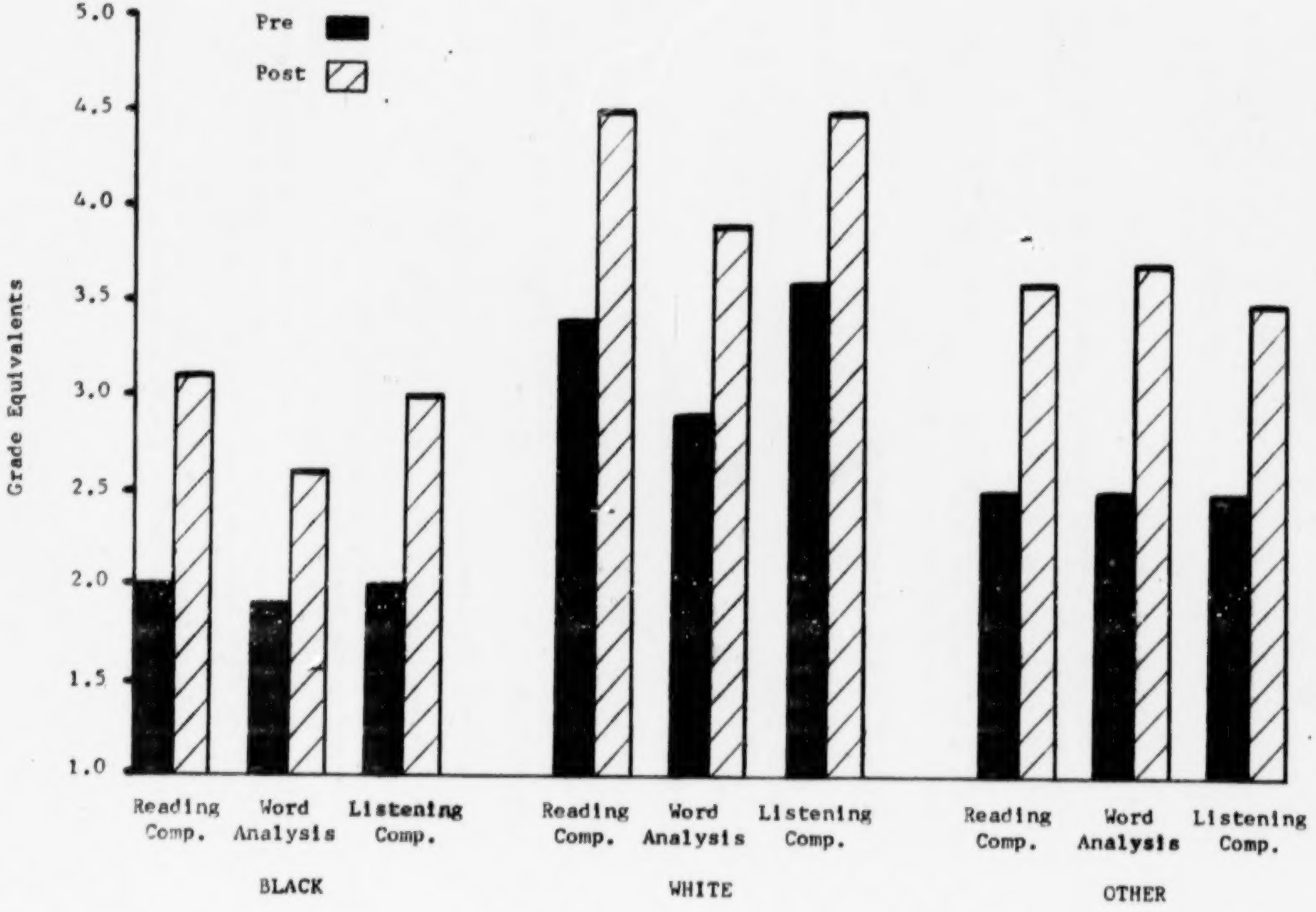


Figure 8

ETS READING COMPREHENSION, WORD ANALYSIS, AND LISTENING COMPREHENSION
Developmental Data
Grade 3



reached different levels favoring the Other children. On post-tests in grade three, Black and White children followed similar patterns, with relative weakness in word analysis and relative strength in reading and listening comprehension; the performance of Other children reflected relatively similar achievement on all three variables.

Basic Guide Question Six--Oral Language Development

As measured by average words per communication unit, what gain in oral language growth could be expected for children in different ethnic and socio-economic classifications?

Hypothesis A, Total Transcript: Pre-post language growth scores for the total transcript will differ significantly for children in various ethnic and socio-economic classifications at each grade level.

Findings by Ethnic Classification

As shown in Table 17, contrasts on average words per communication unit by ethnic classification revealed only two statistically different gains: for Black children and Other children in grade three. No consistent trends were identifiable for any other grade or ethnic classification on the basis of total transcript.

Findings by Socio-Economic Classification

The data presented in Table 18 show significant differences only for High SES and Low SES children in grade three, paralleling findings by ethnic classification as noted above. No other pattern or trend scores were evident in the data examined by socio-economic classification.

Thus, the findings indicate that oral language growth--as measured by average words per communication unit on the total transcript during the seven-month instructional period--is nonexistent or very slight. However, data presented in Table 17 (ethnic classification) and Table 18 (SES classification) reveal relatively greater growth differences across grade levels, suggesting that average words per communication unit may be appropriate for measuring language growth across grade levels but not sufficiently sensitive to identify gains within a grade level for children in kindergarten and grades one and two. On the other hand, at grade three the measure did identify four significant gains (Black and Other children; High and Low SES children) and indicated trend gains for two other contrasts (White children and mid SES children)--possibly suggesting that the measure

Table 17

ORAL LANGUAGE--TOTAL TRANSCRIPT

Developmental Data

(by Ethnic Classification)

Grade	Ethnic Group	Average Words per Communication Unit Pre	Post	F-Value*	N
K	Black	5.90	5.61	.41	12
	White	6.31	6.43	.06	12
	Other	4.92	6.09	3.36	6
1	Black	6.19	6.19	.00	12
	White	7.08	6.57	2.29	12
	Other	6.29	6.89	1.58	6
2	Black	6.36	6.62	.66	12
	White	6.75	6.71	.01	12
	Other	6.68	6.64	.01	6
3	Black	6.64	7.26	6.01*	12
	White	7.37	7.77	2.55	12
	Other	7.44	8.41	7.21*	6

*significant at .05 level

Table 18

ORAL LANGUAGE--TOTAL TRANSCRIPT

Developmental Data

(by Socio-Economic Classification)

Grade	S.-Econ. Group	Average Words per Communication Unit		F-Value*	N
		Pre	Post		
K	High	5.49	5.93	.72	10
	Mid	5.98	6.05	.02	14
	Low	6.22	6.15	.01	6
1	High	6.82	6.42	1.05	10
	Mid	6.40	6.26	.17	13
	Low	6.52	6.97	.99	7
2	High	7.21	7.42	.25	8
	Mid	6.55	6.56	.00	16
	Low	5.81	5.92	.06	6
3	High	7.09	7.98	9.26*	9
	Mid	7.14	7.50	2.62	15
	Low	6.96	7.76	4.98*	6

*significant at .05 level

does offer some sensitivity to language growth within a grade level even though substantial growth was exhibited only at grade three. Assuming that average words per communication unit is a sensitive measure, one may question whether the DELTA Treatment contributed to this growth or whether normal language maturation suddenly increases for children at the third grade level. This question can be answered only when sufficient normative data exists to identify language growth patterns. Another possible explanation is that stimuli used to collect the total oral language sample (see Chapter V) tended to collapse growth patterns so that gains could not be detected by the measure of average words per unit; i.e., short answers tend to obscure the range or variability of response. This latter point will be considered in the discussion immediately following.

Hypothesis B, Multiple Picture Transcript: Pre-post language growth scores for the multiple picture segment of the transcript will differ significantly for children in various ethnic and socio-economic classifications at grade two and grade three.[1]

Findings by Ethnic Classification

By examining separately oral language elicited by the Multiple Picture Stimulus, the researchers believed sharper differences in language growth might be observed, but data in Table 19 exhibit only one significant difference--for third-grade Black children. Although the finding parallels that for language elicited by the total transcript, in this instance all post-test scores were higher than pre-test scores, revealing for all ethnic groups a definite trend not clearly evident in data on the total transcript.

Findings by Socio-Economic Classification

The data presented in Table 19 show only one significant growth difference, occurring at grade three for children in the Mid SES classification. However, as measured by average words per communication unit, trend differences again favor post-test scores for all SES classifications at grades two and three.

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[1] Because the main purpose of the analysis was to contrast oral and written language growth using the Multiple Picture Stimulus, these comparisons were made only at grades two and three when children were able to express themselves in written form.

Table 19

ORAL LANGUAGE--MULTIPLE PICTURE STIMULUS

Developmental Data

(by Ethnic Classification)

Grade	Ethnic Group	Average Words per Communication Unit		F-Value*	N
		Pre	Post		
2	Black	6.91	7.16	.20	12
	White	7.52	7.59	.02	12
	Other	7.72	8.10	.22	6
3	Black	6.75	8.08	6.01*	12
	White	8.27	8.77	.84	12
	Other	7.26	8.07	1.11	6

(by Socio-Economic Classification)

Grade	S.-Econ. Group	Average Words per Communication Unit		F-Value*	N
		Pre	Post		
2	High	7.78	8.08	.20	8
	Mid	7.37	7.57	.18	16
	Low	6.57	6.63	.01	6
3	High	7.36	8.26	2.04	9
	Mid	7.59	8.67	4.90*	15
	Low	7.30	7.69	.25	6

*significant at .05 level

The original belief--that the Multiple Picture Stimulus might elicit language performance reflecting more substantial growth--was partially verified. The trend differences exhibited by children in all ethnic and SES classifications indicate the stimulus is a critical variable in measuring language production. From Figure 9 and Figure 10, it appears that the measure of average words per unit demonstrates greater sensitivity to language growth on the Multiple Picture Stimulus than on the combined stimuli used to obtain the total transcript.[1] This observation is logical because specific questions in the total transcript invariably elicit either a one-word answer or a short response--e.g., "Yes," "No," or "I don't know." In other words, when comparing various research findings on oral language, one must know precisely the type of stimulus used to elicit the language performance.

Basic Guide Question Seven--Written Language Development

As measured by average words per communication unit, what gain in written language growth could be expected for children in different ethnic and socio-economic classifications?

Hypothesis, Multiple Picture Transcript: Pre-post language growth scores for the multiple picture writing sample will differ significantly for children in various ethnic and socio-economic classifications at grade two and grade three.

Findings by Ethnic and Socio-Economic Classifications

The analysis on written language growth by ethnic classification revealed only one statistically significant gain--for Other children in second grade. As shown in Table 20, trend differences were also evident for Black and White children at grades two and three.

Contrasts by socio-economic classification, presented in Table 20, identified a significant difference for second grade children in the Mid SES category and for third grade children in the Low SES category. For High and Low SES second-graders and for High SES third-graders, the data demonstrated trend differences which--although statistically nonsignificant--are possibly of greater practical significances than oral language trend differences reported earlier because of the child's relative inability to express himself in written form. For example, at grades two and three, a stratified sample of thirty children was selected for the writing sample, to be matched with their oral

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[1] The one exception to this trend is for Other children in grade three.

Figure 9

COMPARISON OF TOTAL TRANSCRIPT AND MULTIPLE PICTURE STIMULUS
Developmental Data
Grade 2

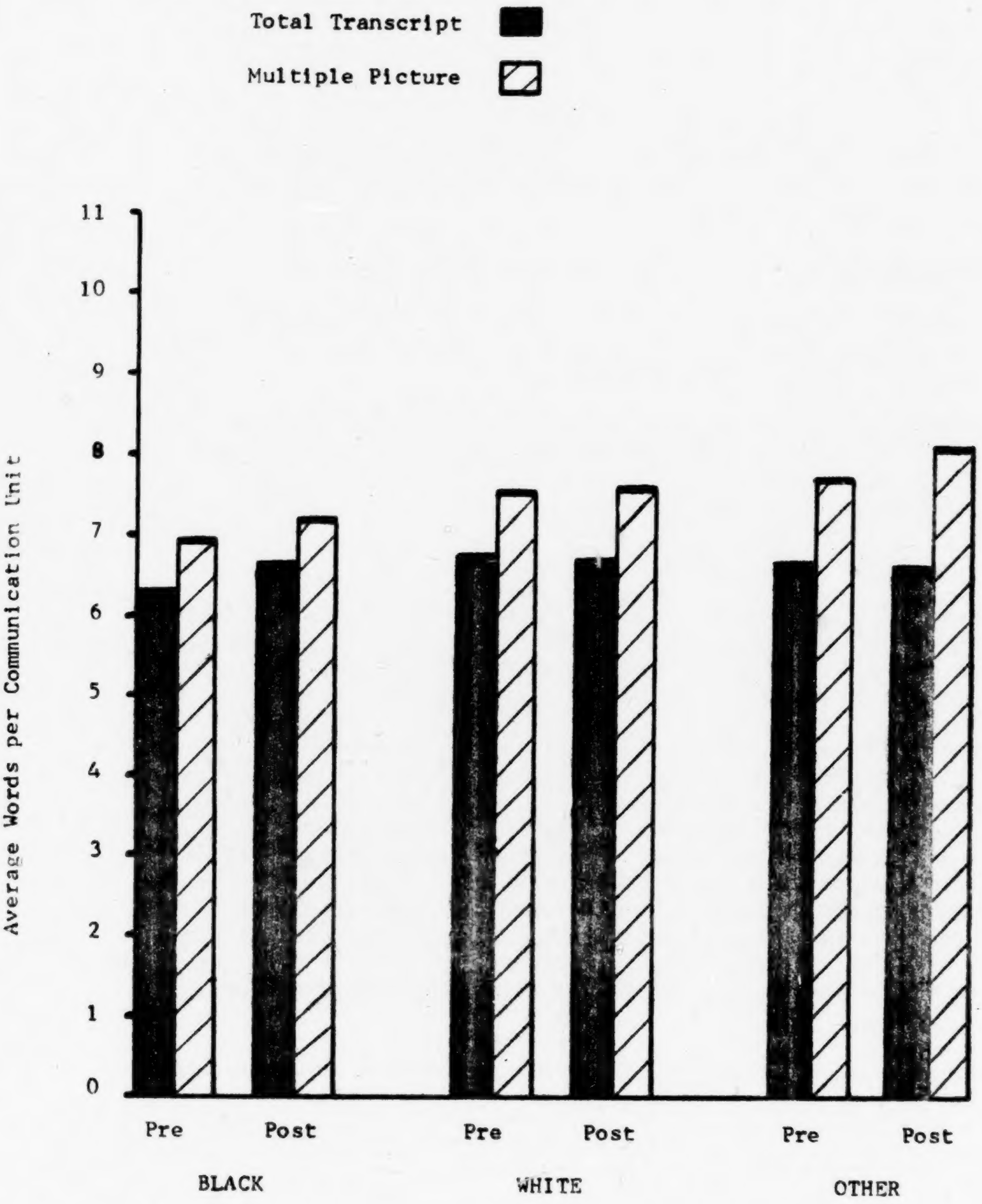


Figure 10

COMPARISON OF TOTAL TRANSCRIPT AND MULTIPLE PICTURE STIMULUS
Developmental Data
Grade 3

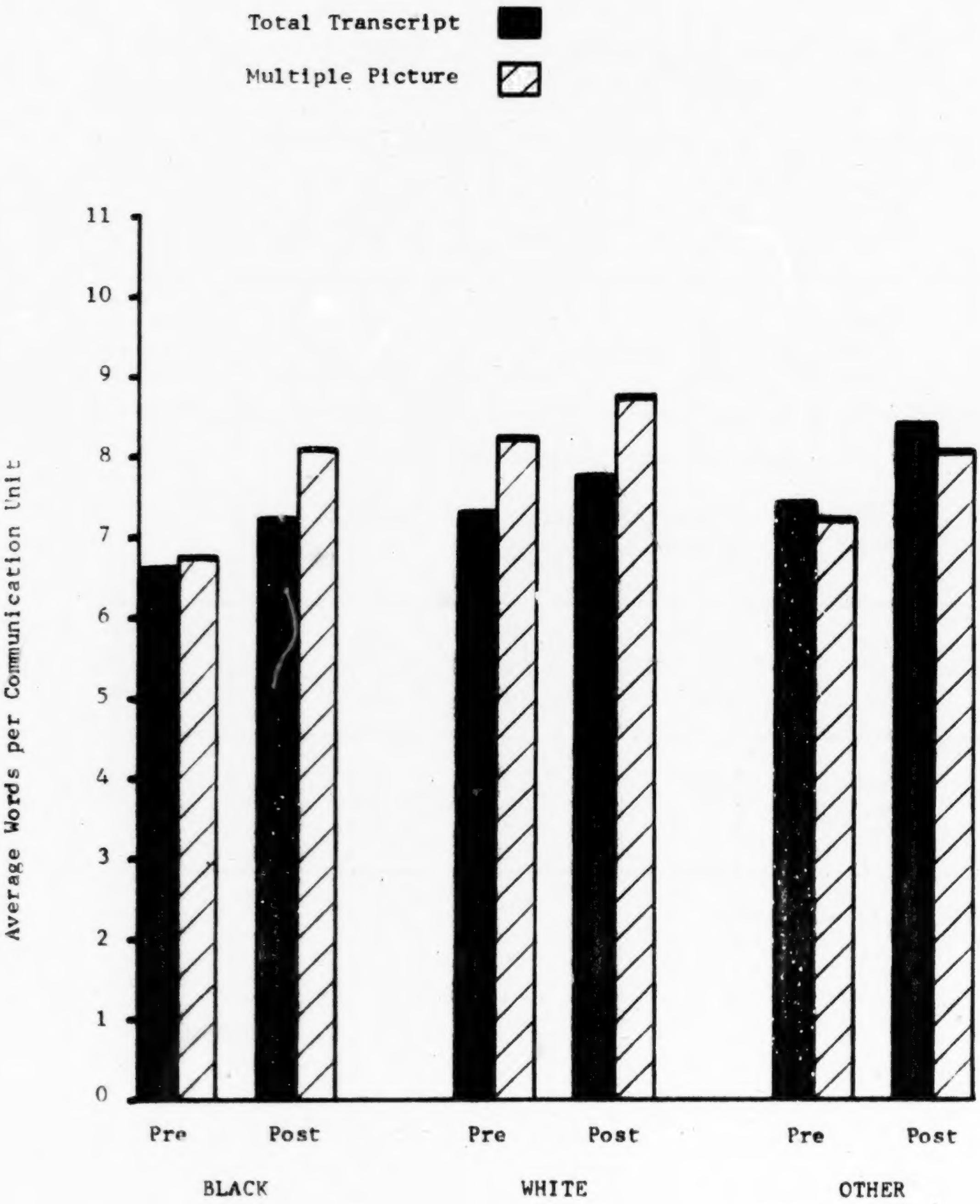


Table 20

WRITTEN LANGUAGE--MULTIPLE PICTURE STIMULUS

Developmental Data

(by Ethnic Classification)

Grade	Ethnic Group	Average Words per Communication Unit Pre	Average Words per Communication Unit Post	F-Value*	N
2	Black	5.30	6.10	.52	10
	White	6.15	7.69	1.95	10
	Other	5.83	11.00	8.80*	4
3	Black	5.90	7.17	1.05	9
	White	7.22	7.64	.12	9
	Other	7.79	6.11	1.25	6

(by Socio-Economic Classification)

Grade	S.-Econ. Group	Average Words per Communication Unit Pre	Average Words per Communication Unit Post	F-Value*	N
2	High	6.58	7.76	.67	7
	Mid	5.36	7.66	39*	12
	Low	5.50	7.13	.91	5
3	High	7.08	7.64	.25	8
	Mid	7.71	6.53	1.80	13
	Low	2.67	7.97	8.29*	3

*significant at .05 level

language sample in order to contrast oral and written language growth. At each grade level, however, only twenty-four children were able to express their ideas in written form. In other words, due to their inability to print, spell, or communicate in written form, six children in each grade were unable to respond to the picture stimulus.

Thus it was concluded that significant gains in written language growth occurred for Other children in grade two, for Mid SES children in grade two, and for Low SES children in grade three. In addition, trend differences were observed for Black and White children in grades two and three, for Mid SES children in grade two, and for High SES children in grade three.

Although no specific hypothesis was formulated, a logical extension of the oral and written language data consists of comparing oral and written language growth by ethnic classification. The following discussion specifically concerns oral and written language growth as elicited by the Multiple Picture Stimulus and measured by average words per communication unit. A later discussion will contrast oral and written language growth as measured by the DELTA Oral and Written Language Observational Scales. Data presented in Figures 11 and 12 have been taken directly from Tables 19 and 20.

In grade two, as indicated by Figure 11, Black children's oral language performance exceeds their written language performance for both pre- and post- evaluations. However, White and Other children manifest a substantial increase in written language growth from pre- to post- evaluation, with post-evaluation for written language equaling or exceeding oral language development for both groups.

Grade three comparisons, as shown in Figure 12, indicate that oral language growth exceeds written language development on all pre- and post-evaluations, with the exception of the pre-evaluation for Other children. The oral and written language growth for Black and White children reflects an increase for third-grade children over second-grade children, whereas, Other children in grade three show little increase in oral language, a relatively large increase in pre-evaluation written language, and a decrease in post-evaluation written language. The fluctuation in the written language growth of Other children may be attributed in part to the small sample size of this group.

It is difficult to determine the extent to which oral and written language growth rates are affected by the children's relative inability to express their ideas in written form. On the other hand, the

Figure 11

COMPARISON OF ORAL LANGUAGE AND WRITTEN LANGUAGE
Developmental Data
Grade 2

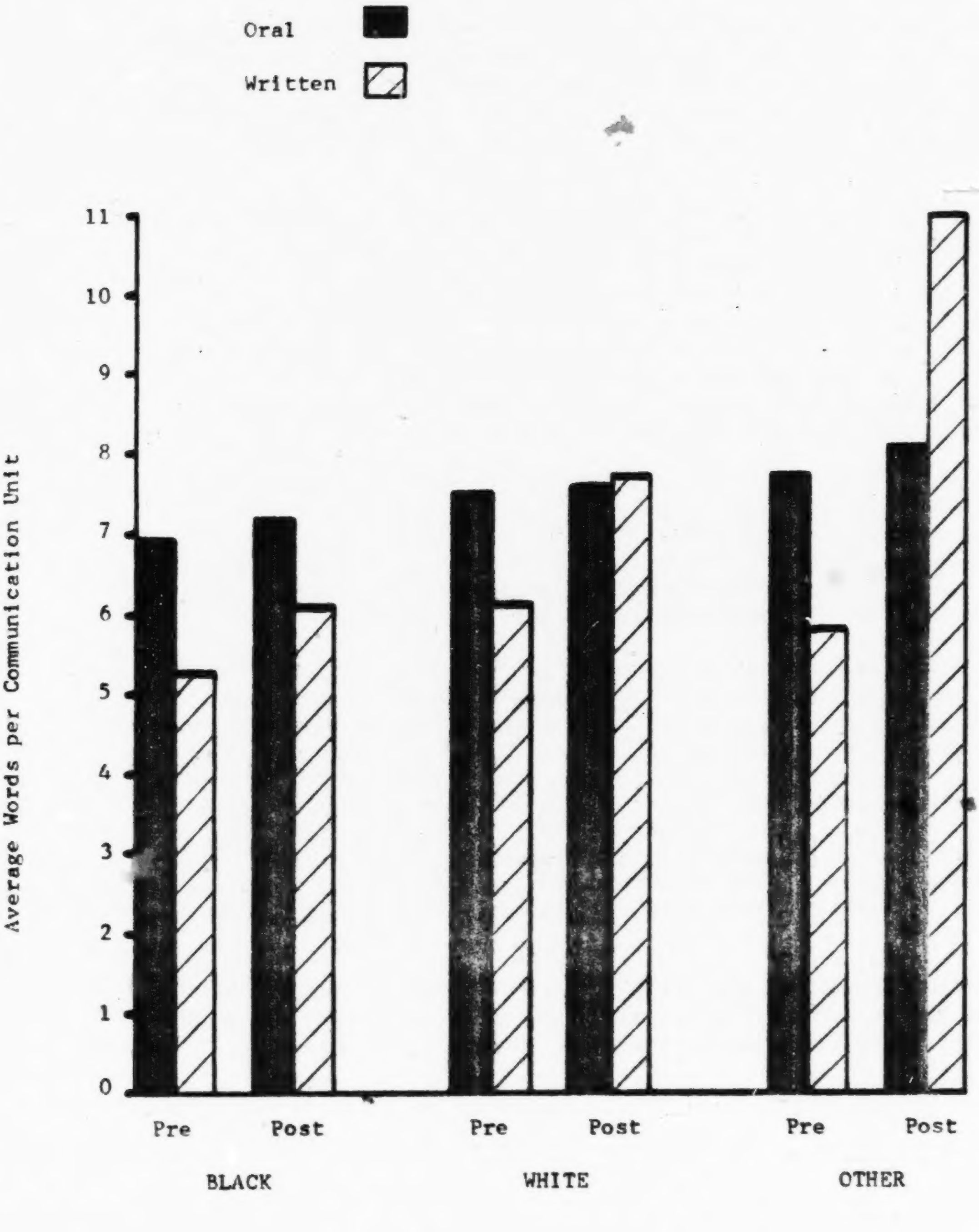
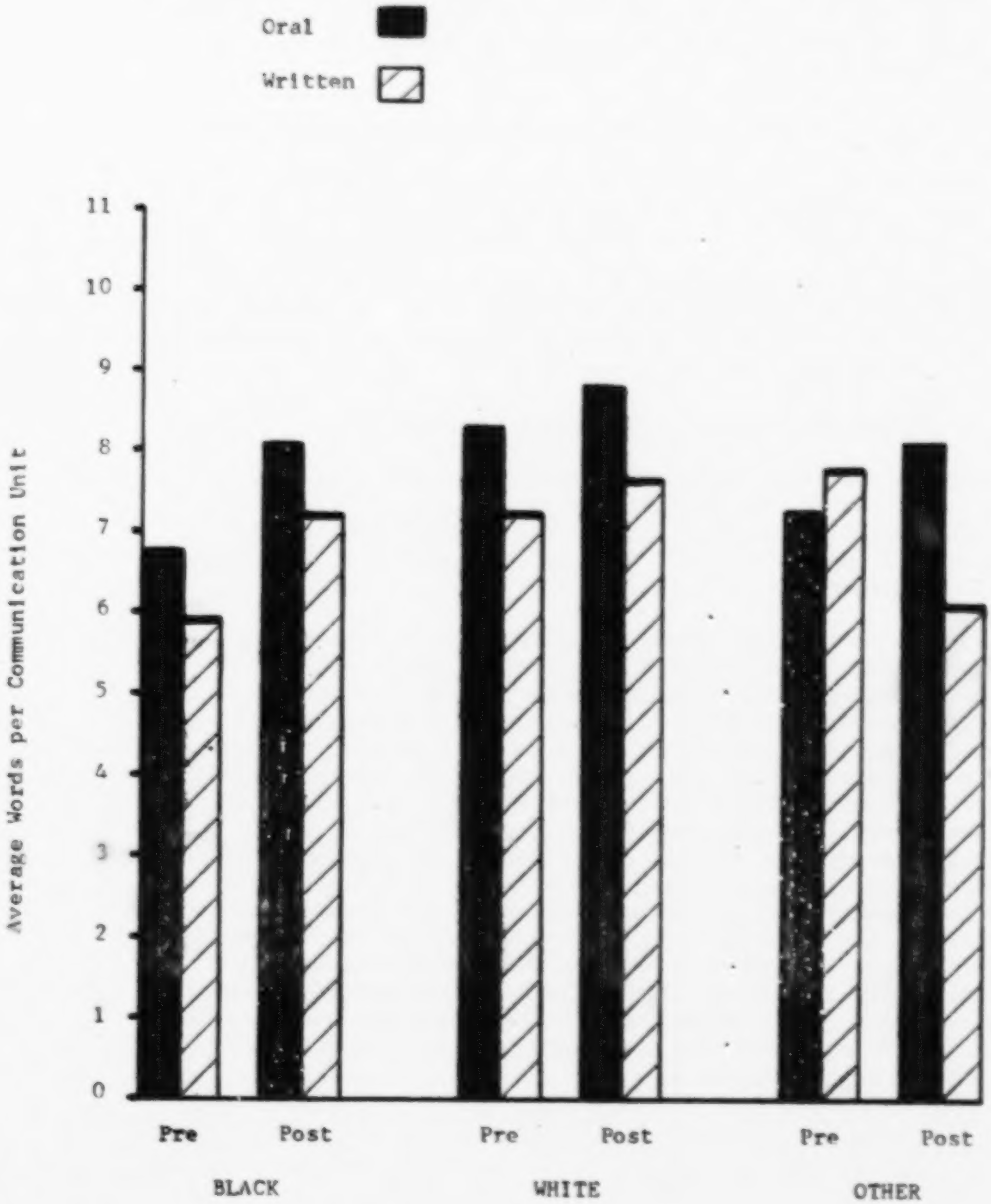


Figure 12

COMPARISON OF ORAL LANGUAGE AND WRITTEN LANGUAGE
Developmental Data
Grade 3



findings seem logical since one might assume that primary-grade children have not yet learned to account for stylistic dimensions of written language and have not gained control over expansions and elaborations of written language; but as children mature, one would expect that elaboration in oral and written expression would more closely coincide and that the average number of words per unit in written language would equal or surpass that measure in oral language. Therefore, as a generalization, oral language tends to exhibit a higher average words per communication unit than does written language at the primary-grade level.

Basic Guide Question Eight--DELTA Oral Language Observational Scale

As measured by the DELTA Oral Language Observational Scale, what gain in oral language growth could be expected for children in different ethnic and socio-economic classifications?

Hypothesis, Multiple Picture Transcript: Pre-post language growth scores for the multiple picture segment of the transcript will differ significantly for children in various ethnic and socio-economic classifications at grade two and grade three.

Findings by Ethnic and Socio-Economic Classifications

No significant differences were observed for any ethnic or socio-economic contrast for children in grades two or three. In third grade, for Black children and for High and Mid SES children the F-values did approach significance, with trend differences favoring post-evaluation scores.

As with the measure of average words per communication unit, the ratings on the DELTA Oral Language Observational Scale appear more sensitive in measuring oral language across grades than within a grade level; contrasts in Table 21 reveal relatively larger differences when comparing grade two and grade three scores than when comparing pre-post scores within a specific grade. Obviously, research techniques are still very limited for measuring oral language development at the primary-grade level. Because oral language is the major mode of communication, especially at this level, future research efforts should concentrate on developing measures highly sensitive to children's oral language development. If one assumes, however, that language production merely reflects the level of cognitive processing ability, one would expect primary-grade children at the concrete operations level to show comparatively little increase in language complexity--as measured by average words per unit or by the DELTA Oral Language Observational Scale. Both the assumption and the measurement problem deserve future research consideration.

Table 21

ORAL LANGUAGE--DELTA OBSERVATIONAL SCALE

Developmental Data

(by Ethnic Classification)

Grade	Ethnic Group	DELTA Scale Pre	DELTA Scale Post	F-Value*	N
2	Black	2.44	2.40	.03	12
	White	2.58	2.63	.03	12
	Other	2.50	2.54	.01	6
3	Black	2.71	3.08	3.61	12
	White	3.10	3.27	.71	12
	Other	3.21	3.46	.80	6

(by Socio-Economic Classification)

Grade	S.-Econ. Group	DELTA Scale Pre	DELTA Scale Post	F-Value*	N
2	High	2.69	2.78	.25	8
	Mid	2.53	2.45	.12	16
	Low	2.21	2.33	.12	6
3	High	2.97	3.39	3.49	9
	Mid	2.97	3.27	3.02	15
	Low	2.96	2.92	.02	6

*significant at .05 level

Thus it was concluded that no significant gains occurred in oral language growth as measured by the DELTA Oral Language Observational Scale although at grade three, for Black children and for High and Mid SES children, trend differences were present--paralleling trends observed for oral language differences in Hypothesis B of Guide Question Six.

Basic Guide Question Nine--DELTA Written Language Observational Scale

As measured by the DELTA Written Language Observational Scale, what gain in written language growth could be expected for children in different ethnic and socio-economic classifications?

Hypothesis, Multiple Picture Transcript: Pre-post language growth scores for the multiple picture writing sample will differ significantly for children in various ethnic and socio-economic classifications at grade two and grade three.

Findings by Ethnic and Socio-Economic Classifications

Data presented in Table 22 indicate that at grades two and three post-evaluation ratings were significantly higher than pre-evaluation ratings for children in all ethnic groups. In addition, post-evaluation ratings differed significantly from pre-evaluation ratings for children in every socio-economic classification, with the exception of second-grade children in the Low SES group; however, the mean difference in this latter category was in the direction favoring the post evaluation rating. Furthermore, these findings suggest that the DELTA Written Language Observational Scale represents a measure more sensitive than the widely-used measure of average words per communication unit.

On the basis of pre-post-evaluation, relatively greater written language growth occurred for children in grade three than for children in grade two. This observation parallels previously discussed findings--i.e., relatively greater oral language growth at the third grade level.

Data presented in Figures 13 and 14 are drawn from Tables 21 and 22 to provide the basis for comparing oral and written language growth by ethnic classification. As shown in Figure 13, the second-grade data reveal that oral and written language growth patterns--as measured by the DELTA Oral and Written Language Observational Scales--are more similar in post-evaluation ratings than in pre-evaluation ratings. This finding suggests that for all ethnic groups in grade two written

Table 22

WRITTEN LANGUAGE--DELTA OBSERVATIONAL SCALE

Developmental Data

(by Ethnic Classification)

Grade	Ethnic Group	DELTA Scale Pre	DELTA Scale Post	F-Value*	N
2	Black	1.26	1.97	12.48*	10
	White	2.12	2.79	11.12*	10
	Other	1.68	2.33	4.19*	4
3	Black	1.86	3.14	20.52*	9
	White	2.97	3.59	4.78*	9
	Other	2.55	3.68	10.58*	6

(by Socio-Economic Classification)

Grade	S.-Econ. Group	DELTA Scale Pre	DELTA Scale Post	F-Value*	N
2	High	1.73	2.44	9.73*	7
	Mid	1.78	2.59	21.36*	12
	Low	1.40	1.74	1.57	5
3	High	2.70	3.69	9.91*	8
	Mid	2.62	3.52	13.14*	13
	Low	1.00	2.50	8.57*	3

*significant at .05 level

Figure 13

COMPARISON OF DELTA ORAL AND WRITTEN LANGUAGE SCALES
Developmental Data
Grade 2

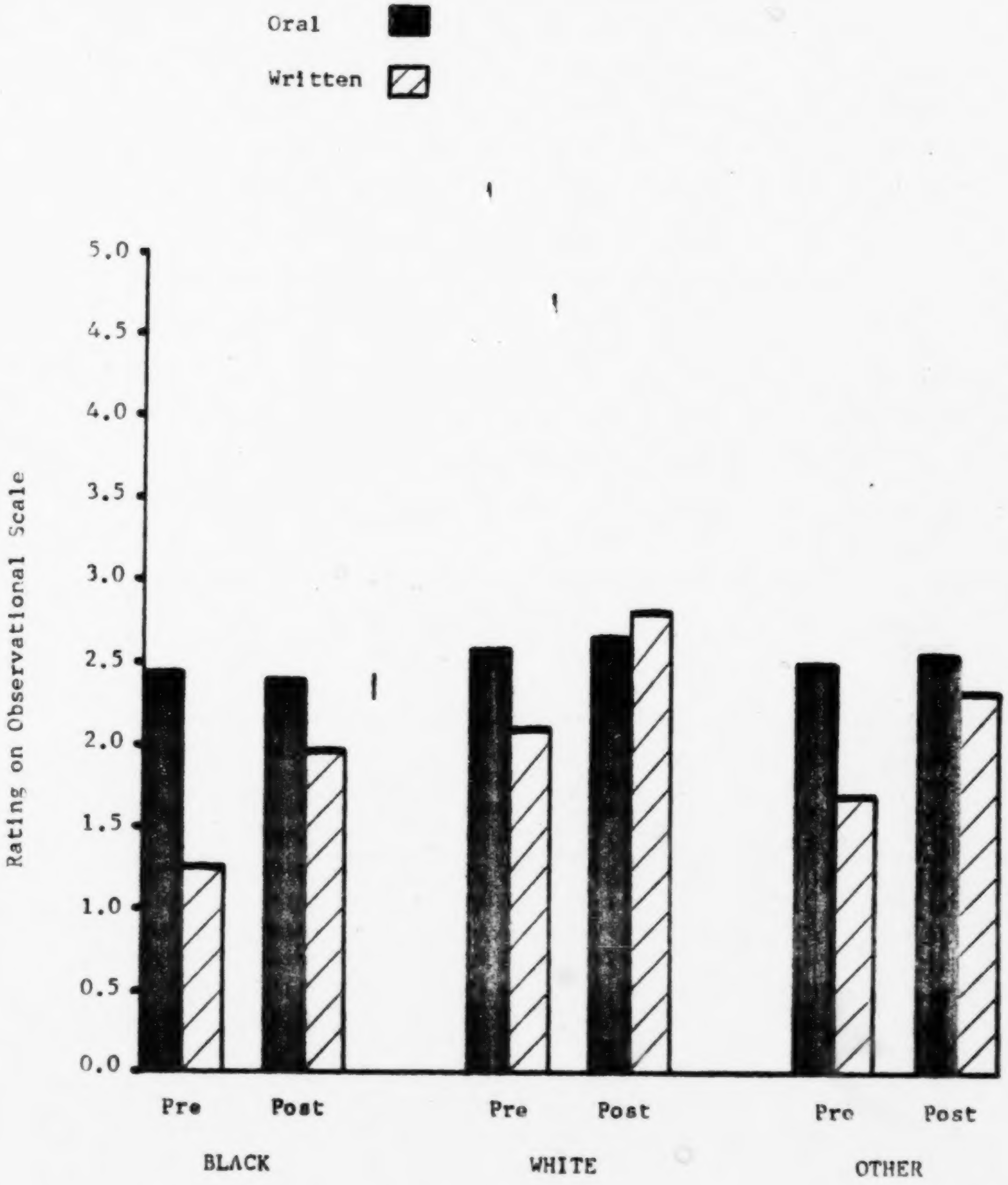
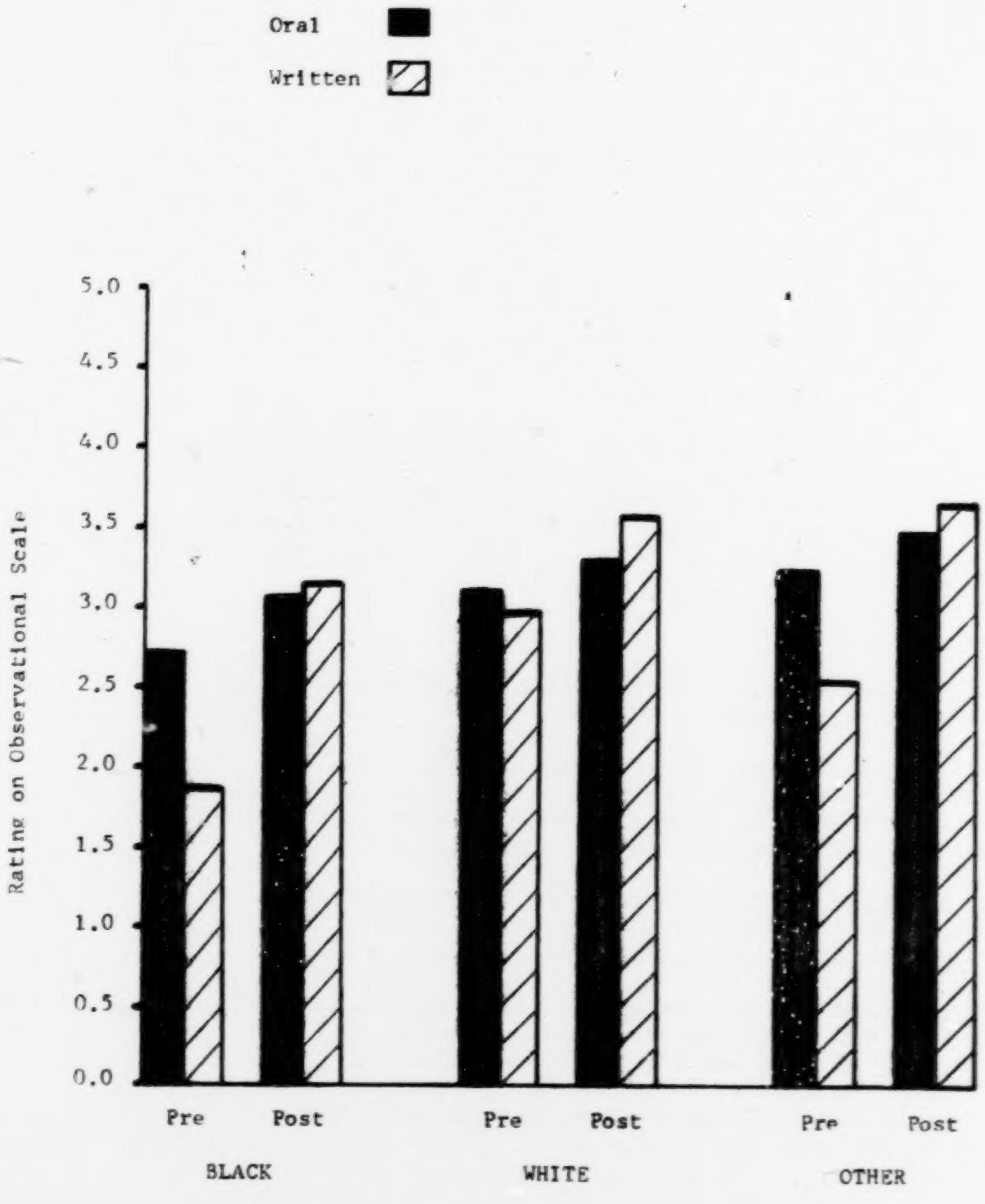


Figure 14

COMPARISON OF DELTA ORAL AND WRITTEN LANGUAGE SCALES
Developmental Data
Grade 3



language gains are disproportionately greater than oral language gains. This disproportionate growth in written language may be attributed to the children's increased control over quality of thought, organization of expression, fluency of language and technical skills in writing--specific dimensions of the DELTA Written Language Inventory. For all ethnic groups the growth pattern identified in Figure 13 for second-grade children was extended into third grade as illustrated by Figure 14. Although the third-grade pre-evaluation ratings on oral language exceed the written expression ratings, the post-evaluation ratings on written expression surpass the oral language ratings for all ethnic groups.

As measured by the DELTA Observational Scales, the progression of oral and written language growth indicates that by grade three the children's oral and written language performances--as elicited by the Multiple Picture Stimulus--closely approximate each other. The precise nature of the greater sensitivity of the DELTA Observational Scales, particularly in measuring written language performance, should be explored in depth to provide both future researchers and classroom teachers with an evaluation instrument capable of measuring specific variables in children's language growth.

Exploratory Questions

At the outset of Project DELTA, six exploratory questions were designed to examine relationships between ethnic group classification and children's performance on language and self-concept assessment instruments, and to examine questioning levels and strategies used by teachers participating in the program. These six questions and the related discussion follow.

Exploratory Question One

What relationship exists between various measures of oral and written language performance?

The above question was divided into six subquestions, each dealing with the relationship between specific measures of language development. Data from post evaluation measures were used to derive the correlation coefficients presented in Table 23.

Subquestion a: Using the total oral language transcript, what relationship exists between average words per communication unit and the Teacher Rating of classroom oral language?

The correlation between average words per unit and the Teacher Rating was 0.23 indicating that the measure of average words per unit accounts for only five percent of the variance in teacher ratings of children's oral language in kindergarten through grade three. This finding suggests that these two measures are evaluating different aspects of language growth.

Table 23

CORRELATIONS FOR MEASURES OF ORAL AND WRITTEN LANGUAGE

	Measures Correlated	Correlation	Grade	N
a.	Average Words per Communication Unit for Total Oral Transcript with Teacher Rating of Classroom Oral Language	0.23	k - 3	82
b.	Average Words per Communication Unit for Oral Multiple Picture Stimulus with DELTA Oral Language Observational Scale rating of Oral Multiple Picture Stimulus	0.08	2 - 3	60
c.	DELTA Oral Language Observational Scale rating for Oral Multiple Picture Stimulus with Teacher Rating of Classroom Oral Language	0.23	2 - 3	60
d.	Average Words per Communciation Unit for Written Multiple Picture Stimulus with DELTA Written Language Observational Scale rating of Written Multiple Picture Stimulus	-0.02	2 - 3	52
e.	Average Words per Communication Unit for Oral Multiple Picture Stimulus with Average Words per Communication Unit for Written Multiple Picture Stimulus	-0.07	2 - 3	52
f.	DELTA Oral Language Observational Scale rating for Oral Multiple Picture Stimulus with DELTA Written Language Observational Scale rating for Written Multiple Picture Stimulus	0.49	2 - 3	52

Subquestion b: Using the Oral Multiple Picture Stimulus, what relationship exists between the DELTA Oral Language Observational Scale rating and average words per communication unit?

The correlation of .08, based on data collected at grades two and three, indicates that little relationship exists between the DELTA rating and average words per unit, again leading one to conclude that these two instruments are measuring different aspects of language development.

Subquestion c: Using the Oral Multiple Picture Stimulus, what relationship exists between the DELTA Oral Language Observational Scale rating and the Teacher Rating of classroom oral language?

The correlation of 0.23, derived from data collected at grades two and three, was surprisingly low since the identical instrument was used to obtain the DELTA ratings and the teacher ratings. The inter-rater agreement between DELTA staff menbers was at the ninety percent level, thus indicating that the DELTA Oral Language Observational Scale was highly reliable when used by staff raters.

Two possible explanations may explain the low correlation. First, the DELTA staff rating was based on the children's oral language performance elicited by the Multiple Picture Stimulus whereas teacher ratings were based on the children's total oral language performance in the classroom. Second, the teacher ratings of children's oral language might be expected to be less reliable than DELTA staff ratings, with the reduced reliability resulting from teachers not clearly understanding components constituting the measure--although the instrument had been carefully explained to the teachers. Another possibility is that teacher ratings of the children's language performance were influenced by children's behavior patterns or dialectal variations, factors extraneous to the language scale.

On the basis of comparatively high correlation between the DELTA Oral and Written Language Observational Scales, using a controlled sample (see Subquestion f), it seems logical to conclude that both divergent language samples and reduced teacher reliability contributed to the low correlation related to this subquestion.

Subquestion d: Using the Written Multiple Picture Stimulus, what relationship exists between average words per communication unit and the DELTA Written Language Observational Scale rating?

The extremely low correlation of -0.02, based on language performance of second and third-grade children indicates that these two measures are not related and are perhaps measuring different aspects of written expression.

Subquestion e: Using the Multiple Picture Stimulus, what relationship exists between the children's oral and written language performance as measured by the average words per communication unit?

A correlation of -0.07, using data collected from second and third-grade children, was also surprising in that a much higher correlation was anticipated. This low correlation may possibly result from the lack of sensitivity to written language development exhibited by the measure of average words per unit. The reader should refer to Guide Questions Seven and Nine for the previous discussion of a distinct difference observed in children's written language growth depending on the measurement technique (average words per communication unit vs. DELTA Written Language Observational Scale). This lack of sensitivity by the measure of average words per unit could reduce score variability in written language, thereby lowering the correlation coefficient reflecting the relationship between oral and written expression.

The low correlation may also depend upon the developmental level of oral and written expression; beyond the primary grades, expectation of a closer approximation of children's oral and written language styles would predict a relatively higher positive correlation.

Subquestion f: Using the Multiple Picture Stimulus, what relationship exists between children's oral and written language performance as measured by the DELTA Oral and Written Language Observation Scales?

The correlation was 0.49, based on the second and third-grade oral and written language samples as measured by the DELTA Observational Scales. The magnitude of this correlation indicates that the written language measure accounts for approximately 24 percent of the variance in the oral language performance--a finding substantiating the relationship between oral and written language development as measured by the DELTA scales.

Exploratory Question Two

What relationship exists between ethnic classification and performance on the standard and nonstandard dialect features of the Listening Comprehension Inventory?

Findings

As previously described, this instrument was designed to explore possible comprehension interference resulting from dialect variations which produce homophones for the Black child speaking a nonstandard dialect. Although the inventory was administered to all subjects from kindergarten through grade three, data have been presented only for grades two and three because analysis revealed that Black kindergarten and first-grade children selected detractor items much more than did White or Other children. Thus, at kindergarten and grade one statistically significant differences were found between Black and White children on the basis of detractor items but not on the basis of standard and nonstandard responses. When differences were observed at grades two and three on the basis of ethnic classification, it was illogical to assume that Black children use significantly more homophones in second and third grades than in kindergarten and first grade. Therefore, because of the ethnic difference in the selection of detractors, the researchers decided that the instrument was inappropriate for kindergarten and first-grade children.

As shown in Table 24, at grades two and three significant differences were observed between Black and White children on standard, nonstandard, and detractor responses--i.e., Black children select nonstandard and detractor items more frequently than do White children whereas White children select standard responses more frequently than do Black children. Significant differences were also found between second-grade White and Other children on standard and nonstandard items--i.e., Other children select nonstandard items more frequently than do White children whereas White children select standard responses more frequently than do Other children.

These findings indicate that dialect-derived homophones produce significantly greater comprehension interference for Black children than for White children at grades two and three and significantly greater difficulty for Other children than for White children at grade two. Viewed in percentage terms, in grade two White children select the standard response approximately fifteen percent more often than do Black or Other children, and at grade three White children select the standard response approximately ten percent more often than do Black children.

Table 24

LISTENING COMPREHENSION INVENTORY

Analysis of Variance by Ethnic Classification

	Ethnic Group	Mean	F-Value*	N	Comparison Contrast	Sig.
Grade Two Standard	Black White Other	16.92 19.75 17.09	16.82*	36 44 23	Black vs. White Black vs. Other White vs. Other	Yes[a] No Yes[b]
Grade Two Nonstandard	Black White Other	6.36 4.70 6.22	9.97*	36 44 23	Black vs. White Black vs. Other White vs. Other	Yes[c] No Yes[d]
Grade Two Detractor	Black White Other	1.72 .55 1.70	6.28*	36 44 23	Black vs. White Black vs. Other White vs. Other	Yes[e] No No
Grade Three Standard	Black White Other	18.10 20.03 18.76	7.72*	40 29 21	Black vs. White Black vs. Other White vs. Other	Yes[f] No No
Grade Three Nonstandard	Black White Other	6.08 4.72 5.38	4.85*	40 29 21	Black vs. White Black vs. Other White vs. Other	Yes[g] No No
Grade Three Detractor	Black White Other	.83 .24 .86	2.87*	40 29 21	Black vs. White Black vs. Other White vs. Other	Yes[h] No No

*significant at .05 level

a significant at .05 level (minimum Scheffé -4.50)
b significant at .05 level (minimum Scheffé .75)
c significant at .05 level (minimum Scheffé .40)
d signigicant at .05 level (minimum Scheffé -2.95)
e significant at .05 level (minimum Scheffé .027)
f significant at .05 level (minimum Scheffé -3.46)
g significant at .05 level (minimum Scheffé .003)
h significant at .05 level (minimum Scheffé .001)

Although these findings are of practical significance to the classroom teacher, the data must be interpreted with caution. The stimulus task uses the standard item, a homophone for the nonstandard speaker, in a sentence providing a limited meaning context: e.g., Circle the picture which shows "The tent is under the tree." The homophone item is a picture depicting the numberal 10 under a tree, and the detractor item shows the numeral 6 under a tree. Thus the child who circles the picture of the 10 under a tree has probably based his selection on meaning context and the word perceived in his dialect as ten rather than tent, indicating comprehension interference. However, an alternate form of this instrument was designed to provide additional sentence meaning clues to determine if the child could utilize such information to disambiguate the confusion produced by the homophone. In the alternate form of the instrument, the above item became the following: Circle the picture which shows "The tent with the flag is under the tree." Analysis revealed that the nonstandard speaker did indeed use the additional information, thereby resolving the meaning confusion. To apply these findings, the classroom teacher must be constantly aware of word labels which are homophones for the nonstandard speaker and must provide as complete a meaning context as possible in order to eliminate these ambiguities for children speaking a nonstandard dialect.

Exploratory Question Three

What relationship exists between ethnic classification and performance on the standard and nonstandard dialect features of the Phonological Spelling Inventory?

Findings

The purpose of the Spelling Inventory was to examine the relationship between dialect variations and spelling performance. Alternate forms of the inventory were designed. Each form contained one member of the homophone pair selected from nonstandard dialect spoken by Black children. Although two forms were administered to third graders on a random basis--one-half of the children received Form A and one-half received Form B--test results were combined for the statistical analysis.

The data presented in Table 25 reveal that White children achieved significantly higher scores than did Black children, with no difference between White and Other children. With a total of 25 items in the inventory, Black children had a mean of 6.20 words spelled correctly, compared to a mean of 14.14 spelled correctly by White children.

Table 25

PHONOLOGICAL SPELLING INVENTORY

Analysis of Variance by Ethnic Classification

(Grade Three)

Ethnic Group	Mean	F-Value*	N	Comparison Contrast	Comparison Sig.
Black	6.20	13.39*	40	Black vs. White	Yes[a]
White	14.14		29	Black vs. Other	No
Other	11.43		21	White vs. Other	No

*significant at .05 level

[a] significant at .05 level (minimum Scheffé -12.81)

A word-by-word analysis of Forms A and B (see Appendix D-1 and D-2), indicated that most children either developed a standard spelling representation of each word or attempted to spell each word phonetically. For Black children two problems seem to be dialect-related. First--simplification of final consonant clusters: e.g., told was spelled as towd, indicating final consonant cluster simplification ld$\longrightarrow$d. Second--hypercorrection, possibly resulting from the child's previous encounter with standard spelling in the classroom. For example, foe was spelled as for or four or fore; in other words, the phonetic [w] was replaced with r, perhaps because the child assumed he should have heard an [r].

Thus, it was concluded that the standard spelling performance of Black children was significantly below that of White children, with the differences in spelling achievement at least partially attributable to the dialect variations of Black children. Further research is necessary to fully explain dialect-related spelling difficulties.

Exploratory Question Four

What relationship exists between ethnic classification and performance on the standard and nonstandard dialect features of the Language Preference Inventory?

Findings

The Language Preference Inventory was designed to identify a child's preference for the standard or nonstandard language form. The inventory was administered only at the third-grade level because of the complex format requiring that before making his choice the child listen to a recording of standard and nonstandard forms while simultaneously reading the standard and nonstandard forms in his test booklet--e.g., She is a pretty lady., or She a pretty lady.

The data in Table 26 reveal that Black children selected significantly more nonstandard forms than did White children; conversely, White children selected significantly more standard forms than did Black children. No statistically significant differences were observed between Black and Other children or between White and Other children

Although Black children selected approximately twice as many nonstandard forms as White children selected (5.75 items compared to 2.48 items), the relative size of this difference is not substantial on an inventory of thirty items. Black children did not seem to exhibit a preference for nonstandard language forms to the degree one

Table 26

LANGUAGE PREFERENCE INVENTORY

Analysis of Variance by Ethnic Classification

	Ethnic Group	Mean	F-Value*	N	Comparison Contrast	Sig.
Grade Three Standard	Black	24.13		40	Black vs. White	Yes[a]
	White	27.52	8.48*	29	Black vs. Other	No
	Other	25.38		21	White vs. Other	No
Grade Three Nonstandard	Black	5.75		40	Black vs. White	Yes[b]
	White	2.48	7.88*	29	Black vs. Other	No
	Other	4.57		21	White vs. Other	No

*significant at .05 level.

[a] significant at .05 level (minimum Scheffé -5.95)

[b] significant at .05 level (minimum Scheffé .72)

might expect in a typical urban center. This may be due to the integrated housing pattern surrounding Washington School; possibly community and school integration results in a language preference which does not differ greatly in practical application for Black, White,and Other children.

Exploratory Question Five

What relationship exists between ethnic classification and performance on the I AM Self-Concept Assessment Instrument?

Findings

The I AM instrument was designed to assess children's concept of self in relation to reading activities, language activities, and play activities. As presented in Table 27, findings for grades two and three reveal no statistically significant differences with the exception of Black and White children in third grade. Data indicate that White children selected more neutral responses than did Black children; however, the mean difference is so slight that the contrast provides little of practical significance.

One finding of interest, derived from these data is that Black, White, and Other children almost invariably selected positive responses in both second and third grades. This finding, plus the lack of significant differences across ethnic groups, may suggest that the children were acutely aware of the instrument's purpose and believed the teacher would prefer positive responses. Another plausible explanation relates to the forced choice of positive or negative situations in which the child feels peer-group pressure to project himself as a happy person. It is planned that a new inventory will be designed to account for the problems identified above. However on the basis of the present findings, no significant relationship could be identified between ethnic classification and positive or negative self-concept.

Exploratory Question Six

As identified by the DELTA Taxonomy, what questioning levels and strategies are used by teachers in classroom instruction?

Findings

For purposes of analysis, the investigators made two alterations in tabulating question and response frequencies based on the DELTA Comprehension Taxonomy. First, because very few responses occurred

Table 27

I AM SELF-CONCEPT ASSESSMENT INSTRUMENT

Analysis of Variance by Ethnic Classification

	Ethnic Group	Mean	F-Value*	N	Comparison Contrast	Sig.
Grade Two Positive Response	Black White Other	20.61 20.57 21.00	.14	36 44 23	a	
Grade Two Negative Response	Black White Other	1.86 1.98 1.87	.02	36 44 23		
Grade Two Neutral Response	Black White Other	.53 .45 .13	.61	36 44 23		
Grade Three Positive Response	Black White Other	20.44 19.55 20.24	.61	40 29 21		
Grade Three Negative Response	Black White Other	2.41 2.31 2.52	.03	40 29 21		
Grade Three Neutral Response	Black White Other	.15 1.14 .24	4.18*	40 29 21	Black vs. White Black vs. Other White vs. Other	Yes[b] No No

*significant at .05 level

a Since the F-value did not reach the level required for significance, the Scheffé contrast was not run.

b significant at .05 level (minimum Scheffé -1.87) at the applicative question and response level, these were combined with responses at the interpretive level to represent one comprehension level; therefore questions and responses will be examined at the factual and interpretive levels--the two major comprehension levels under consideration. Second, because very few responses occurred in the strategy category labeled ignoring, these were omitted from the final presentation.

A detailed comparison of the May 1970 and May 1971 video-tapes indicated that the frequency of response did not differ significantly for questioning levels. Thus, for purposes of discussing the following exploratory questions, the authors will use data derived from the May 1971 video-tapes.[1]

As previously mentioned, video-tapes were recorded while each teacher developed a controlled literature selection with six children chosen at random from the classroom. For teachers with multi-graded classrooms, children were randomly selected on a proportional basis; for example, if a class consisted of children in grades one and two, three of the six sample children would be randomly drawn from grade one and three from grade two. Each video-tape was approximately twenty minutes in length and, with two exceptions, provided for completion of discussion on the literature selection. The video-tape was then analyzed using the DELTA Comprehension Taxonomy.[2]

Exploratory Question Six was examined by formulating seven subquestions dealing with questioning levels, questioning strategies, response levels, response strategies, and the relationship between levels and strategies.

Subquestion a: What percentage of each questioning level--factual or interpretive--do teachers utilize in classroom instruction?

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[1] Currently being examined is the impact of the Comprehension and Critical Thinking strand on questioning levels, response levels, and strategies for teachers who participated in this strand.

[2] Inter-rater reliability for the analysis ranged from .85 to .95.

Data presented in Table 28 indicate that factual questions comprised approximately 68 percent of all questions identified, whereas questions at the interpretive level occurred approximately 32 percent of the time. In other words, to develop the literature selection with the children, teachers used twice as many factual as interpretive questions. These findings, paralleling those reported in the previously cited work of Guzak, emphasize the need for teachers to utilize questions at a higher level.

Subquestion b: What percentage of each questioning strategy--e.g., focusing, controlling, etc.--do teachers utilize in classroom instruction?

As shown in Table 28, focusing and extending strategies were used with greatest frequency, representing 25 percent and 45 percent of the questions, respectively. Teachers used the strategy of raising approximately 16 percent of the time; controlling, receiving, and clarifying strategies occurred 5, 4, and 3 percent of the time, respectively. The comparative infrequency of clarifying and raising suggests that teachers should consider these two strategies as meanings are refined and extended.

Subquestion c: Does the percentage of each questioning strategy at the factual level differ from the percentage of each questioning strategy at the interpretive level?

The extending strategy occurred approximately 57 percent of the time at the factual level and approximately 20 percent of the time at the interpretive level. The strategy of focusing accounted for approximately 25 percent at both factual and interpretive levels, with controlling accounting for approximately 4 percent at both levels. Although raising was not used at the factual level, this strategy was used nearly 50 percent of the time at the interpretive level. At the factual level the receiving strategy was used 7 percent and clarifying 5 percent; however, no receiving or clarifying strategies occurred at the interpretive level. These findings indicate that teachers are utilizing extending and raising strategies at the interpretive level although no use is made of clarifying; therefore, teachers rely most heavily on raising when working at the interpretive level and extending for developing meaning at the factual level.

Subquestion d: What percentage of each response level--factual or interpretive--do teachers utilize in classroom instruction?

Table 28

TEACHER QUESTIONING LEVELS AND STRATEGIES

DELTA Taxonomy Analysis, May 1971, Video Recording

(N=24)

Questioning Level	Focusing		Controlling		Receiving		Clarifying		Extending		Raising		Total	% By Level
	Mean	%	Mean	%	Mean	%	Mean	%	Mean	%	Mean	%		
1. Factual	29.06	26.00	4.93	4.40	8.06	7.10	5.67	5.00	65.00	57.50			112.72	68.20
2. Interpretive	12.87	24.40	3.44	6.50					10.10	19.20	26.19	49.70	52.60	31.80
Total	41.93		8.37		8.06		5.67		75.10		26.19		165.32	
% By Strategy		25.30		5.10		4.90		3.40		45.60		15.70		100.00

Data presented in Table 29 reveal teacher responses to be almost exclusively at the factual level--approximately 99 percent. This disproportionate percentage of factual responses may be intentional: the science program in use at Washington School for several years stresses child-developed interpretation with a minimum of teacher interpretation; and it is possible that this response behavior has transferred to the instructional setting for the literature selection. This finding deserves special attention in future curriculum planning as the nature and intent of teacher response is explored. It would seem desirable, for example, to encourage teachers to consider that children might derive modeling value from teacher responses at the interpretive level.

Subquestion e: What percentage of response strategy--e.g., focusing, controlling, etc.--do teachers utilize in classroom instruction?

As shown in Table 29 receiving and extending strategies constituted 80 percent and 19 percent, respectively, of the response strategies. This finding may be uniquely related to the development of literature selections although one would not expect this to be the case. In developing response strategies, much more balance should be included, particularly in using clarifying and raising strategies.

Subquestion g: Do teacher questioning levels and strategies appear to be related to pupil response levels and strategies?

On the basis of available data, it is not possible to answer this question definitively although the data do suggest interesting speculation. Table 30 indicates that approximately 86 percent of the children's responses occurred at the factual level and 14 percent at the interpretive level. Factual and interpretive responses utilize two strategies almost exclusively: the receiving strategy, used only at the factual level (33 percent of factual responses); and the extending strategy, used at both the factual and interpretive levels. The extending strategy accounts for approximately 67 percent of factual responses and approximately 92 percent of interpretive responses. Since the receiving strategy serves merely as an acknowledgement with no elaboration, it is useful, for the most part, as a social interaction device indicating positive or negative acceptance of an idea. Thus the extending strategy, providing additional information on an identical subject as the same comprehension level, seems to represent children's major response strategy at both the factual and interpretive levels.

Table 29

TEACHER RESPONSE LEVELS AND STRATEGIES

DELTA Taxonomy Analysis, May 1971, Video Recording

(N=24)

Response Level	Focusing		Controlling		Receiving		Clarifying		Extending		Raising		Total	% By Level
	Mean	%	Mean	%	Mean	%	Mean	%	Mean	%	Mean	%		
1. Factual			.09	.10	51.71	80.10	.25	.40	12.50	19.40			64.55	99.50
2. Interpretive									0.09	100.00			0.09	0.50
Total			.09		51.71		.25		12.59				64.64	
% By Strategy				.10		80.00		.40		19.50				100.00

Table 30

CHILD RESPONSE LEVELS AND STRATEGIES

DELTA Taxonomy Analysis, May 1971, Video Recording

(N=144)

Response Level	Focusing		Controlling		Receiving		Clarifying		Extending		Raising		Total	% By Level
	Mean	%	Mean	%	Mean	%	Mean	%	Mean	%	Mean	%		
1. Factual	.09	.05			57.03	33.10	.09	.05	115.40	66.80			172.61	85.90
2. Interpretive									25.75	91.90	2.27	8.10	28.02	14.10
Total	.09				57.03		.09		141.15		2.27		200.63	
% By Strategy		.05				28.40		.05		70.40		1.10		100.00

This finding appears to correlate with data on teacher questioning levels and strategies as presented in Table 28. Extending, the strategy used most frequently by teachers (approximately 46 percent of the time), consumed 57 percent of factual questions and 19 percent of interpretive questions. These data also indicate that teachers used the raising strategy approximately 50 percent of the time at the interpretive level although the children's interpretive response level reflects the use of the raising strategy only 8 percent of the time. This lack of parallel of teacher questioning level and strategy with child response level and strategy suggests that teacher interpretive questions may have been formulated at a level too difficult for the children. As a result, the children may have responded with the extending strategy at the interpretive level--a speculation supported by the extremely high percentage (approximately 92 percent) of extending strategies used at the interpretive level. In addition, it would be anticipated that the comparatively high percentage of teacher extending questions (approximately 50 percent) at the interpretive level would result in children using the extending response strategy. Again it is emphasized that these findings indicate consideration must be directed to balanced questioning strategies and to the fit between the child's conceptual development and the teacher's questioning level and strategy.

VII. SUMMATIVE DATA: PROCESS AND PRODUCT--MODEL STRAND DEVELOPMENT[1]

The summative data questions identified in Chapters I and III were used to guide the discussion found in this chapter. Each question is realized through the section headings which follow. A summary related to each summative data question will be presented in the final chapter of this monograph.

Implementation Process

In an in-service professional development program such as Project DELTA, a large amount of pre-planning must necessarily occur if the program is to become a viable and dynamic force early in the school year. Thus, as the project staff enters the school, it arrives equipped with concepts and preconceptions as well as with specific materials and ideas which have already been developed, designed, and formulated.

However, in an urban setting such as Washington School, the teaching staff also possesses inherent characteristics, not only in the realm of attitudes and personalities but in the realm of training and capabilities. Many teachers have already utilized a wide range of ideas, concepts, and programs in their classrooms. Therefore, in the developmental in-service program the dynamics of personal interchange lead invariably to what Hegal viewed as thesis-antithesis-synthesis. Or if we wished to use different terminology, any of the following categories might prove appropriate in describing the interchange sequence:

Method, alternative method, refined method

Proposal, counter-proposal, joint proposal

Imposition, confrontation, compromise

On the other hand, even though the process may at times be difficult, the dynamic interchange between project staff and school staff can usually be expected to produce a better product than either group could produce in isolation.

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[1] Discussion in this chapter is based on the following data: (1) weekly logs recorded by strand leaders, assistant director, and director, (2) audio tape recordings of weekly seminars, (3) video-tape recordings of classroom instruction, workshops, and seminars, (4) detailed notes based on weekly seminars, (5) observations of classroom instruction recorded by DELTA staff, and (6) observations by the project director of the DELTA staff.

Characterisitcs of an Effective Strand Leader

An effective strand leader should be intelligent, well-educated, and innovative. But in addition to these obvious characteristics, the strand leader should also possess the abilities to accept criticism, to be subtle rather than overbearing, and to minimize his own ego-involvement pertaining to products he himself devises.

On the surface, the ability to accept criticism seems relatively simple. Nevertheless, difficulty can arise if the strand leader feels that the criticism is unfair or that possibly the person criticizing is doing so merely to be preverse. The problem typically arises during a confrontation over a specific concept or product with the critic claiming, for example, that a specific concept is being imposed rather than discussed and formulated. At this juncture there is understandably a natural tendency for the strand leader to be defensive or to launch a counter-attack: however, either reaction invariably results in ill-feelings or a total stalemate rather than in production of a more effective product.

An amusing sidelight to the above problem is a situation encountered within the staff itself: If a concept, for example, is discussed verbally it appears to be tentative; if the concept is introduced in hand-written form, it appears to be firmly established, and if the same concept is neatly typed before presentation, it appears to be a final definitive imposition. Another example is that a strand leader may introduce a product which is attacked and totally shredded by the teachers. Then, working as a group, the strand leader and teachers reassess and reconstruct the product. On occasion, the new product is virtually indistinguishable from the one originally presented.

If the foregoing process occurs, the strand leader needs the ability to be subtle rather than overbearing. In other words, it would be tempting to point out that the initial product was unjustly attacked and maligned; again, however, such a reaction serves no purpose except in unusual circumstances, after a definite rapport has been established with the teachers. In fact, the process of tearing down and rebuilding seems essential if teachers are to internalize the concepts being discussed and view the final product as a joint effort of both staffs.

The ability to minimize one's own ego-involvement pertaining to products he himself devises is also an indispensable characteristic of an effective strand leader. Working in isolation, one rarely produces a perfect product. And certainly the years of experience accumulated by a group of teachers may be valuable, particularly in assessing whether a given product can be moved from a theoretical framework to classroom usefulness. Thus, the strand leader must realize that frequently his work can be improved and must accept the improvement even though the product is thereby no longer his unique endeavor.

A final characteristic essential to an effective strand leader is that he himself should be a competent classroom teacher at the grade level of the project's emphasis. This ingredient is necessary because the school staff will often request that the strand leader teach a demonstration lesson in the area stressed by the strand leader. If the strand leader is not an effective classroom teacher, he will appear to be a theorist or an academician "at the university level"--out of touch with day-to-day classroom realities.

Characteristics of Teachers

As does any other group, classroom teachers differ widely--not only in attitude and personality but also in ability to produce within a developmental framework such as Project DELTA. Since not every school will contain the range of teachers described below, the following categories should be viewed as those which might occur rather than those to be anticipated in each urban school setting.

Highly supportive, highly productive: This group not only supports the project goals and objectives but readily accepts duties and responsibilities beyond the normal school day (beyond the weekly strand-seminar meeting) and is therefore highly productive.

Supportive, productive: This group supports the project and is productive within the confines of the weekly strand-seminar meeting. Possibly the difference between this group and the foregoing one is fundamentally energy level: i.e., teaching at the primary-grade level can be an exhausting experience, and it is often unrealistic to expect a teacher to be highly productive in a project as well as effective in the classroom.

Supportive, non-productive: This group supports the project but is simply not productive. Lack of productivity may result from reticence, poor communication, little creativity, or any of several other factors.

Productive, non-supportive: This group tends to be relatively neutral about the project goals and objectives (or value). However, since these teachers have agreed to participate, they remain reasonably productive during the weekly strand-seminar meeting.

Non-supportive, non-productive: This group does not support the project and does virtually nothing during the weekly strand-seminar meetings. Such teachers, who are usually extremely quiet and almost withdrawn, possess little creativity in their ideas and almost no desire to consider alternatives whereby the strand might better accommodate their needs.

Anti-supportive, productive: This group feels that the project's goals and objectives do not meet either their needs or their students' needs. Vocal in confrontations, these teachers are eager to follow tangents or personal concepts rather than the discussion desired by the strand group. Despite the above characteristics, however, such teachers may often be of value in a developmental project: confrontations sometimes ease frustrations, choices become more clearly defined, and the strand leader (from the project staff) does not remain the focal point throughout the strand development.

Anti-supportive, non-productive: Fortunately, this group is usually quite small. Such teachers provide no support for the project and offer no alternatives. Thus, this group seems to have little creativity, is constantly involved in confrontation, and frequently appears to be perverse simply for the sake of being perverse.

One final comment should be considered in regard to the supportive, non-productive teacher discussed above. In some respects, this group appears to be simply "talking a good line" but not desirous of expanding any effort. Nevertheless, such teachers should not be excluded from the project (if the program is a total school program) since positive benefits result from including as many teachers as possible, particularly those supporting the project goals and objectives.

Developing and Implementing the Project Strands

The foregoing discussion essentially describes the development of the five DELTA strands since,in terms of process, a broad overlap existed. There were pre-planning meetings during the summer, institute phases were designed to provide stimulation and information for each strand, and initial confrontations occurred between the project staff and the teaching staff regarding the degree of pre-designed structure the teacher felt was being "imposed" by the DELTA staff. Given this broad overlap of process, we can now examine each strand individually.

Oral and Written Language

The oral and written language strand emphasized six aspects of the child's linguistic behavior:

1. quality of thought: originality, imagination, intellectual curiosity, and use of relevant information;

2. organization of expression: use of language to introduce, develop, and conclude ideas, sensitivity to audience as indicated by sequencing and relatedness of ideas;

3. quality and control of language: range and precision of vocabulary, knowledge of concepts, and diversification of both sentence pattern and inner-sentence style;

4. fluency of language: quantity of language and the appropriateness of that quantity for the desired purpose;

5. personal response to language: the pleasure and enjoyment derived from using language;

6. technical skills: style switch, inflection, articulation, usage, and punctuation.

An observational scale[1] for evaluating oral language development was devised in order to eliminate dependence on the expensive process of recording, transcribing, and analyzing individual oral interviews.

In developing the oral and written language strand, oral language (together with its counterpart, listening) was viewed as a primary cognitive-linguistic operation. Written language was viewed as a secondary cognitive-linguistic operation since research indicates that the ability to become an effective writer is very closely related to oral language ability. Thus, if oral language is viewed as primary and written language as secondary, the school should give preferential emphasis to oral language. In other words, as the base for all other language operations, oral language should be developed in a meaningful and effective curriculum; written language, on the other hand, would follow and complement the oral language curriculum.

Numerous studies have indicated that all children, with the exception of those suffering from severe emotional problems or varying degrees of mental retardation, enter school with a firm grasp of the grammar of their language--although children differ in their language performance: some exercise clarity and control whereas others exhibit speech which can only be described as totally inadequate. Given these varying levels of performance, the overall goal for each strand should be interrelated with every other strand in order to produce one reading-language program. Briefly, the oral and written language strand related to the other strands in the following ways:

Relation to Decoding: Children's stories, first spoken and then written, provided substance for decoding skills. Words from the stories would be used for phonetic analysis, structural analysis, and analyses of other components.

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[1] See Appendix A-1.

Relation to Comprehension and Critical Thinking: Children's oral and written stories furnished a base for developing questioning strategies at the factual, interpretive, and applicative levels.

Relation to Literature and Self-Concept: Because a viable program in oral and written language depends upon the rich language input of literature, the relation between these strands seems self-evident. In addition, accepting the child's language as the instructional base fosters the child's positive self-image.

Relation to Parent Participation: Awareness of the home's impact upon the child's language indicates that school and home should relate more closely. Project DELTA foresaw parents acting as scribes for their children's stories, reading interesting and exciting literature, engaging in conversations, playing word games, etc.

During the initial strand formulation, the project staff engaged in a series of meetings somewhat analagous to meetings of a psychological encounter group. Some DELTA staff members were viewed as child-centered, insisting that all curriculum be so based whereas others were viewed as basic-skills centered. In a different context, some staff members were considered non-structured whereas others were considered overly-structured. However, the problem of working harmoniously was resolved through honest, open discussions, candid conversations, and the breakdown of rank. No person was viewed as "higher" than another; consequently, no idea was "better" than another. All staff members agreed upon the goal of creating the finest reading-language curriculum possible, and this goal undoubtedly helped unify the group.

For the summer institute,[1] pertinent articles[2] were identified, reproduced, and provided to participants since the teachers' intellectual growth was a main consideration of the project. During the course of developing the strand, debates and confrontations certainly occurred before the final strand goals were formalized. To a degree, several teachers were skeptical about what else was hiding in the basement (the on-site location of Project DELTA); i.e., some feeling existed that the total scope of the project was not being presented to the teachers. However, as teachers became better acquainted with the DELTA staff, this suspicion abated.

One interesting feature was that initially teachers requested "recipes" for creative oral and written language lessons while simultaneously asserting that DELTA was imposing too high a degree of structure. Because of this, the strand leader allowed development to proceed in accordance with the teachers' desires. However, after four weeks of weekly meetings, classroom visits, demonstration teaching, and individual conferences, the teachers indicated they were frustrated by a lack of structure and a sense of non-directionality. Thus, the decision was made to diagnose children in particular language areas--following each diagnosis with specific teaching activities.

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[1] See Appendix L.

[2] A bibliography of institute readings for all strands is found in Appendix K.

Weekly strand seminars were devoted to presenting, discussing, revising, and rejecting oral and written language lessons. When one teacher presented a lesson accepted by the group, other teachers would try that same lesson in their classrooms. This method provided feedback on the usefulness of a specific lesson.

In addition to strand seminars, demonstration teaching proved particularly effective; rather than the strand leader observing the teacher, the teacher had the opportunity to observe the strand leader. There were also individual conferences ranging from casual chatting while eating lunch or walking down the corridor to formal pre-arranged meetings.

For the September-January period, the culminating activity resembled a bazaar or carnival. After a brief statement by each strand member about his area of specialization, teachers were invited to "shop" for new ideas at the different booths. In a section of the multi-media room, each strand member arranged such "wares" as story charts, children's books, recordings, video-tapes of lessons, and a puppet demonstration with children who had agreed to remain after school. Another key ingredient of the culminating activity was an oral and written language notebook containing sample lessons.

Members of the second oral and written language strand (February-June) were self-selected; i.e., all teachers were allowed to choose the new strand in which they would participate. Nine teachers--many influenced by the culminating workshop--joined the strand; because of the large number of teachers involved, two weekly strand meetings were arranged, one in the morning and one in the afternoon. Consequently, the time spent with each teacher was less than it had been during the first strand which had fewer members. However, demonstration teaching, team teaching, tutoring of children, and individual conferences occurred with the new group just as with the original group.

The second strand group elected to apply the ideas contained in the notebook rather than to create new lessons. For the first category, language enrichment, all teachers emphasized sentence "stretching": for example, to move the child from "I saw a flower." to "Yesterday while walking to school, I saw a small white flower." Much time was spent on this activity, with each teacher offering new techniques. Additional topics stressed included books created by children, and the concept of literature as a motivation and a base for writing.

For the culminating activity of the second section, teachers arranged a room with language games, children's books, poems, video-tapes of creative dramatics, etc. Other teachers browsed and discussed ideas with strand members. Although there was no product such as the notebook, strand members reproduced their oral and written language lessons for the use of other teachers. The formal presentation of the second section was a group discussion on "How to Get the Reluctant Writer Writing."

Literature and Self-Concept

In the literature area, the strand emphasized encouraging the child to read and to enjoy reading. Story-Telling Kits were available for children to check out; these packets of paperback books contained selections that the child himself could read. Child-centered objectives in the literature strand included helping the child (a) build an appreciation for literature, (b) gain self-knowledge through literature, (c) develop as an individual, (d) develop as a member of a group, and (e) discover personal parallels in literature, in problem-solving, and in predicting reasonable or realistic outcomes.

In the self-concept area, an inventory[1] was devised to assess the child's self-concept in relation to various oral and reading-language situations. Also developed as part of the strand were video-tapes, slides, and printed materials dealing with introducing, presenting, and sequencing specific literature selections meaningful to children.

During the summer pre-planning period, each strand leader strongly objected to using existing curriculum materials as the basis for strand development--not only because existing materials seemed too traditional and failed to meet the philosophy of the strand leaders but also because no one on the DELTA staff had encountered a single reading-language program that considered the varied needs and interests of the inner-city child. Therefore, from the standpoint of the literature strand, the goal was to help teachers develop:

a. an awareness of basic life themes expressed in literature;

b. a knowledge of the broad range of appropriate uses of literature with children;

c. the ability to match literature experiences with children's needs and interests.

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[1] See Appendix F.

In addition to the general strand framework, two consultant speakers provided specific input during the summer institute:[1]

Professor Alan Dundes Department of Anthropology University of California at Berkeley	Folklore, A Mirror of the Culture Traditions, customs, food, tales and myths shared as reading-language experiences applied to the primary-school program.
Virginia Reid Oakland Public Schools and President, National Council of Teachers of English	The Use of Film as Literature Classroom activities pertaining to literature portrayed on film and by other visual media.

During the institute some teachers expressed a considerable dislike for the degree of structure, "over-programming" as they termed it--indicating a preference for fewer speakers but more time application. However, this protest was difficult to evaluate because teachers stimulated by and satisfied with the institute did not forcefully voice their opinions. Nevertheless, as the literature group began, the strand leader posed the following questions to the participating teachers:

a. What are your major goals in using children's literature in your classroom?

b. To achieve these goals, what do you consider to be the range of appropriate literature experiences for children?

c. What characteristics of the primary-grade child do you consider in order for your goals to become realistic?

At the outset, strand members seemed to feel that DELTA was just one more "package," thus, it took a certain amount of effort to convince each teacher that although pre-planning had been a necessary component, everything was subject to modification so that strand development would be a joint effort (DELTA and Washington School). This fact needed emphasis since teachers were accustomed to fully-developed curriculum "packages" being introduced to be taught and evaluated.

One particular method which proved quite successful was to use each week a common book selection as the prime vehicle for discussion. The four regularly participating members (several did not participate regularly) used a specific book with a group of children in their classrooms; this shared experience then provided a base for discussion during the weekly seminar.

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[1] See Appendix L.

The foregoing served as the format for most seminar sessions with the strand leader participating as an active peer rather than as someone with a master plan. (Each week the strand leader introduced new stimuli to augment rather than dictate the line of thought.) However, at a later point, several members felt that the strand was simply attempting to "zero in" on certain book titles without having any overall framework. Therefore, in conjunction with the strand leader, the group developed a chart, with a card file supplying an annotation on each book selection included. The major areas and categories were as follows:

I. Developing As An Individual
  A. Establishing Individual Identity
  B. Identity as a Child
  C. Handling Emotion

II. Developing as a Member of a Group
  A. Establishing Group Identity
  B. Teamwork, Cooperation
  C. Contributions of Similarities/Differences
  D. Family Relations

Of equal importance with the choice of literature was the emphasis on the use of literature. Through classroom activities and children's reactions, the strand group summarized the use of literature for building self-esteem--concluding that the teacher should

1. Help the child surface the background he brings to the story;
2. Help the child parallel himself to the characters and their actions;
3. Ask open-ended questions which can be solved with a variety of alternatives;
4. Use child-initiated responses to aid numbers 1, 2, and 3 above.

As part of the strand's mid-year culminating activity, a composite video-tape was made to demonstrate the four basic principles. Other teachers at Washington School viewed the tape and were given information on the availability of products produced by the group: a master chart providing a cross-indexing of book titles with their specific contributions and an annotated card file of books selected for potential contribution to the child's self-image as an individual or as a member of a group.

A major regret of the first strand section was that not as much had been accomplished as hoped, and one suggestion was to shift the emphasis to oral and written activities in conjunction with literature selections. However, the second strand group diverged slightly and undertook constructing story kits with audio-tapes to be used at listening posts. These teachers were not interested either in classroom observations by the strand leader or in utilizing their literature video-tapes. Instead, members preferred to work independently on one kit per week, using the weekly seminars for sharing and discussion about expanding the kits.

The second strand group began dissemination by each member asking another teacher to use the developed kits and to insert additional suggestions. It was planned that each teacher in the school would be exposed to one kit before the end of the year, but this goal was not accomplished.

Actually a connection existed between the first and second strand sections in that members of the second group began with titles already included on the chart and in the card file--recording these stories on audio-tape as the basis for kits to be used in classroom listening center. They also expanded beyond these books, using basic "classics" from their own experience or recommended by the librarian.

In addition to the tapes, the group determined other possible inclusions for the kits. When deciding which items would be most appropriate and beneficial for use with a specific book, the designer of the kit selected from the following list:

--hardback book copy

--paperback copy

--slides of the book pages

--activities for pre- or follow-up use

--ditto masters of illustrations

The tape itself was recorded in either of two ways: (1) dramatized for listening or (2) paced slowly for read-along. In each of the sixteen kits developed, the strand group agreed it was necessary to include (a) a synopsis of the story, (b) a brief description of the nature of the tape such as format and page-turning signal, and (c) a check-list of the inclusions.

The June culminating activity was mainly visual display, with each member contributing one kit he had designed plus samples of accompanying activities. Within the display setting, two kits were set up for direct listening. Children's murals, paintings, puppets, and drawings were used to illustrate activities. Photographs captured a dramatization, and charts recorded a re-telling and revising of a story plot. Strand members were available to explain the various areas and to answer questions; in addition, an attempt was made to obtain teachers' suggestions for using the kits (via the Media Center) during the next year.

As a generalization, the strand leader felt that members of the second group were more impersonal and separated from each other than were members of the first group. Teachers seemed pleased with the kit they had designed, but they shared little of themselves and their classroom lives. Each kit was designed as an independent product, and most remained that way--although a few were tried by fellow strand members. Quite possibly, several other factors were operating: some members may have felt "interrupted" after just beginning their first strand; much of the time period for the second strand section coincided with the "downhill" portion of the school year; or perhaps the second group would have responded well to direct leadership even though the entire school staff had previously indicated a strong desire to be self-directive.

Comprehension and Critical Thinking

In this area the main concern was that the child understand oral and written language in order to achieve the greatest possible benefit from his education. The strand's major goal was to help teachers move away from depending on factual questions toward formulating questions which elicit the child's interpretation of relevant information (rather than simple recall). A second objective was to help teachers develop a sensitivity so that questioning strategies elicit meaningful responses rather than stifling the child's natural inquisitiveness.

A comprehension taxonomy[1] was devised to assess the teacher's questioning level (factual, interpretive, applicative), the child's response level (factual, interpretive, applicative), and the teacher's ability to move the child toward a higher level of response (away from factual toward interpretive or applicative). The observational scale elucidates teacher-child interaction on the basis of strategies: focusing, ignoring, controlling receiving, clarifying, extending, and raising. Also developed as part of the critical thinking strand were video-tapes illustrating teacher questioning strategies.

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[1] See Appendix G.

During the summer pre-planning phase, devising the DELTA Comprehension Taxonomy probably resulted in more staff confrontations than any other aspect of the project. The originial taxonomy, devised prior to the project, was criticized as being too complex, too theoretical, and lacking in practical applicability; revisions of the taxonomy also led to disagreement although eventually a viable instrument was constructed.

In searching for a meaningful way to apply the taxonomy to classroom instruction, the strand leader concentrated on teacher-child interaction since questioning stragegies seemed fundamental to enhancing the child's learning ability. Thus, the DELTA Taxonomy was devised as a framework for discovering and analyzing the levels at which youngsters operate in terms of comprehension abilities, as a guide for encouraging the development of more complex comprehension skills and the corresponding thought processes, and as a means of analyzing interactive strategies used by teachers and children in the process of developing such skills.

To be more specific, the DELTA Taxonomy focuses on the process of thinking--a process ranging along a continuum from factual to interpretive to applicative. Each dimension may be observed in the affective, cognitive, and/or interactive domain; and within each level of the continuum, operations are performed indicating the use of comprehension abilities--generalized knowledge-acquisition skills permiting children to acquire and exhibit information gained from exposure to symbolic representation. Definite thought processes are involved in the acquisition of comprehension abilities. At the factual level, the learner utilizes experience and memory; at the interpretive level, the learner utilizes his critical thinking abilities to manipulate and modify information; and at the applicative level the learner utilizes his critical thinking processes and problem solving to transform information leading to comprehension and substantiation. When interpreting the taxonomy, it is important to realize that each level on the meaning continuum (factual, interpretive,and applicative) crosses into each domain (affective, cognitive, and interactive).[1]

The taxonomy forms the basis for using the DELTA Interaction Analysis System, a means of focusing the teacher's awareness on interactive discourse patterns by analyzing his own verbal interaction and the interaction of children in his classroom. The analysis indicates who is speaking (teacher or child), the function of the speech (question, comment, or response), the comprehension level elicited by the question or indicated by the response (factual, interpretive, applicative), and the strategies used (focusing, ignoring, controlling, receiving, clarifying, extending, raising). Categories for the system and the interactive domain of the taxonomy were developed from an analysis of a twenty-minute video-tape made by each teacher in May 1970, prior to the pre-planning phase of Project DELTA. After each teacher made a similar tape in May 1971, the taxonomy and interaction system were used as a research instrument by the project to descriptively analyze teacher questioning levels and strategies. Therefore, the interaction system serves a dual purpose: as a research tool and as a resource tool for teacher-training.

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[1] See Appendix G for definitions used to determine the level of meaning.

The use of consultant speakers during Project DELTA deserves careful scrutiny. The teachers evolved several generalizations in relation to consultant speakers: some deal with a subject vaguely with little attempt at applicability; others are polished but present nearly a "commercial" package; some offer good content with a dry or dull delivery; still others entertain but their message has no content. The teachers felt a good blend of characteristics was provided by Dr. Kenneth Johnson, a sociolinguist from the University of California's (Berkeley) School of Education. Whereas Dr. Johnson was entertaining in his use of examples and anecdotes, he simultaneously offered valuable information about the language of the Black inner-city child.

Participants were invited to join the strand for two pruposes: (1) to explore, discuss, and devise a program to help teachers develop more effective questioning strategies as a means of enhancing children's comprehension and critical thinking abilities; and (2) to discuss, compile, and experiment with a variety of teaching techniques, activities, ideas, and methods that might aid in improving a child's comprehension and in providing feedback regarding his performance at a particular level. However, the strand group was unique in that it was composed of teachers who had expressed no preference for any specific strand. In other words, the teachers who became members of the strand were neither insistent upon joining the group nor motivated by a special interest in the comprehension area.

Although the six participants initially met as a single group, it soon became apparent that time and lack of cohesiveness necessitated functioning as two groups, with classroom teachers forming one and resource teachers another. To become familiar with the interaction system, everyone agreed to explore the May 1970 video-tapes to become familiar with the interaction system. At the same time, however, they resisted further application of the taxonomy--a resistance honored by the strand leader since one goal of Project DELTA was to avoid imposing a pre-designed structure.

After approximately four weeks, the strand members expressed a feeling of non-directionality. At this stage the group began to work extensively with weekly video-taping, and all teachers participated in both the taping and the sharing of tapes with other strand members. There was no resistance to peers reacting to a colleague's classroom teaching as illustrated on video-tape--although initially everyone was overly positive and supportive; only after weeks of group discussion did strand members begin to offer constructive criticism. In other words, at first teachers hesitated to indicate in another's teaching any area possibly warranting change. However, once the situation proved nonthreatening and constructive, everyone was able to shift in the direction of helpful criticism.

One interesting phenomenon was that the group frequently requested supportive research in the comprehension and critical thinking areas--but when such materials were supplied, little was done with the information. On the other hand, the teachers continued the weekly video-taping and prepared a guide sheet to accompany each tape. Strand members used these guide sheets to focus discussions about the tapes; each sheet included the teacher's purpose in recording the tape, the process involved in the lesson including areas of concern (specific aspects for which the teacher wished strand members to watch), and the strand group's observations and evaluation.

For the benefit of others planning in-service training in comprehension and critical thinking, the following are representative questions posed by strand participants:

What are DELTA's expectations for a product?

Where do we fit? Where do we start?

How do we know we're not duplicating what's been done previously?

Without expertise, what can we contribute that would be valuable to other teachers?

How will we know if what we're doing has an effect on the children? On us? On others?

How will our efforts be made transferable?

What will the second strand group do with what we've begun?

What will be the strand leader's role?

What is comprehension?

What is the relationship between comprehension and critical thinking?

Why is there such ambiguity in definitions of these processes?

What is really known about the comprehension process?

How can DELTA develop a working definition of comprehension?

What is really worth knowing about the comprehension process and about instruction in comprehension?

How can we develop a strand that will be of real value to a teacher?

What can we provide to offer practical direction, rather than adding to the existing confusion?

Although such questions have no simple answers, anyone involved with in-service education should realize that these types of questions will be asked, even if answers are not readily ascertainable.

The culminating activity of the first strand group can be described postively in that all members participated wholeheartedly in both the planning and workshop itself. Unfortunately, there was too much emphasis on content and too little on process. The group spent long hours editing and splicing video-tapes to produce a master-tape illustrating the Criteria Checklist; teachers carefully included illustrations from each strand member and many illustrations for each point on the checklist. At the same time, however, the audience appeared inundated and experienced difficulty in understanding the point being illustrated when viewing a short segment out of context even though a strand member introduced and discussed each segment. Following an effective beginning--a tape of teachers' "bloopers" featuring negative illustrations of questioning techniques, the remainder of the tape constituted an over-use of the medium without providing for audience interaction.

The second strand group in comprehension and critical thinking desired more structure and direction than did the first--a pattern typical of all strands, possibly resulting from the fact that the teachers overcame their original resistance to structure while participating in the first strand groups. In other words, most teachers had resolved the problems of resistance, confrontation, and their opinion that DELTA was imposing a pre-planned structure and were therefore more prepared to begin curriculum design nearer the outset of the second strand. Essentially, the second strand seminar was a transfer of the program to a new group of teachers--a transfer subject to modification but a transfer nonetheless.

After initial questions and discussions, the second strand group began viewing and discussing weekly video-tapes within the context of guide questions prepared by the strand members. For each tape the teacher completed a sheet listing his purpose, his reactions to the lesson, and possible aspects for the group to examine. Prior to the weekly seminar, the strand member leading the discussion assembled the sheets and attempted to indicate particular segments of the tape for discussion. After the third meeting, however, members expressed the feeling that whereas the purpose had been achieved in terms of using and analyzing the video-tapes, the mechanics and the distraction of the children lessened the value. From this decision evolved a new approach: to view the "before" and "after" tapes of a particular teacher functioning with her children in a group discussion. Although initially the teacher dominated the verbal interaction--heavily controlling the situation and relying predominently on factual-recall questions, later tapes demonstrated her growing sensitivity to the children's responses, emphasizing increased extending and raising of the children's response level.

Weekly meetings and individual conferences continued, but because of the new approach the strand leader also worked in the classrooms with teachers to explore ideas surfaced during seminars. Thus, the emphasis shifted toward developing comprehension skills evolving from the child's independent reading, then to the language experience approach, and finally to any pre-written material, basal, or trade book.

Working within the new approach, the teachers originally decided to limit development of activities to five skills: (1) word meaning and concept development, (2) phrase and sentence meaning, (3) recalling details, (4) recalling the author's main idea, and (5) recalling the sequence of events. Using an identical story and concentrating on those five skills, each member taught a small group of children--trying to develop unique, motivating activities to encourage comprehension in each ability. Results of their teaching and the children's concrete visual products were shared during seminars. Regarding the five skills, the teachers freely acknowledged that they must have been doing a rather inadequate job if they were unable to suggest but a few ordinary ideas for reinforcing those skills.

Strand members next divided themselves into three sub-teams, each meeting several times per week to coordinate individual products, with the strand leader serving as a resource person to all three groups. Two teachers developed the DELTA Question Bank, based on their analysis and selection from video-tapes of those questions that seemed to elicit multiple responses from children. They categorized successful generalized questions, coded by the comprehension level they attempted to elicit--questions teachers could use either orally or in written form. The second concentrated on Tasks Involving Comprehension and Thought, manifested by cards describing unique and effective activities generalized to fit any story either heard or read--activities on which children could work independently. Stories were also coded by comprehension level and thought elicited. The third group worked on Activities to Identify Meaning--a sequence of activities to develop understanding at the factual level. These activities, usable with any reading approach or materials, were categorized according to the particular ability they seek to encourage.

The culminating activity of the second strand group was handled exclusively by the teacher-participants. Different areas of the workshop room were devoted to games and activities illustrating the Question Bank, the Tasks Involving Comprehension and Thought, and the Activities to Identify Meaning. After examining the examples provided, visiting teachers were urged to make their own games in an area set up for construction. Strand members were relaxed and proud of their accomplishments; other teachers seemed impressed by the array of obviously new ideas and practical materials.

Decoding (Word Attack)

Focusing on strategies applicable to texts used at Washington School as well as on phoneme-grapheme correspondences and critiques of specially-designed decoding lessons, the decoding strand emphasized helping each teacher to develop a variety of teaching strategies and to understand the specific problems encountered by minority-group children with difficulties created by their dialect's forming homonym features not encountered by standard-speaking children. For example, dropping the final consonant d converts road to row; dropping the final consonant l converts roll to row. Other major strand objectives included developing instructional strategies to match children's activities (guided discovery and directed expository response) and building sensitivity to children's learning styles (impulsive versus reflective).

A decoding observational checklist[1] was devised; additional strand components include video-tapes illustrating classroom activities, audio-tapes, color slides, booklets, and overlays for use with an overhead projector. The decoding checklist is one of the most important products developed by the strand members. During the summer pre-planning, the strand leader attempted to relate decoding content to ideas from Piagét, Bruner, and Bloom.

The decoding strand experienced processes identical to those in other strands--pre-planning, confrontation, structure, restructure, etc. However, unique to this strand was that, following completion of the first section, no teachers elected to participate in the second section--despite the fact that children at Washington School have obvious difficulty "cracking the code," i.e., with the decoding process. Therefore, during the second strand section (February to June) the strand leader worked with individual teachers rather than with a decoding strand group.

Although the decoding checklist was originally designed as an observational inventory, as the year progressed it became evident that the checklist could additionally function as an outline for strand development. In this context, the strand identified six components--which also prove to be the main elements to observe during a decoding lesson.

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[1] See Appendix I.

The first component, designated as decoding content, consists of all materials the teacher utilizes in developing the factual knowledge that will help children learn to decode. This procedure enables teachers to separate clearly the knowledge or factual elements of the decoding program from the processes children use when reading--making explicit the kinds of knowledge about language that pupils learn in decoding versus the performance behaviors they bring to the reading act. (Many teachers tend to confuse these factual elements with the reading process -- i.e., what the child actually does when he reads versus what the teacher teaches.)

The second component, generalizations derived from factual elements, moves the child closer to the act of reading but still does not represent the actual reading process. Generalizations represent a bridge from the factual elements to the processes involved in reading. Some teachers tend to feel that by teaching the generalizations (as indicated in the reading series manual or in a reading textbook) they have taught their pupils to read, whereas the children have learned only to relate a number of factual elements and to discover certain language characteristics.

The third component has a dual aspect--the decoding strategies teachers think children use (and which teachers therefore try to teach) and the decoding strategies children actually use. Because research on the reading process is in the early stages, this component is still tenuous--consisting at present of a list of behaviors pupils probably have as a result of their own acquisition of language and the teaching of factual content and generalizations in the reading program. Until construction of reading theory relating to a language theory, little of value can be accomplished with the decoding strategies pupils use when reading. Instead, the most valid approach lies in determining what seems to help children learn to read and in applying this knowledge.

The fourth component indicates the teaching strategy generally used in teaching a decoding lesson. Identified as deductive and inductive and modified to account for expository and guided-discovery processes, the strategies indicated are not considered either the only ones used or mutually exclusive. In other words, some children will learn by using one strategy rather than another or by using a combination of strategies, and this component attempts to identify those teacher behaviors considered necessary to develop children's reading skills.

The fifth component, interactive direction, is designed to capture the movement of a decoding lesson from one category to another. This procedure attempts to indicate the possibilities of the teacher's interaction with her pupils, and focusing on teaching behavior and the structure of decoding lessons. This component is related to the instructional strategy component since these two aspects of a decoding lesson operate simultaneously; i. e.,each statement or question has both an instructional strategy dimension and an interactive dimension.

The sixth component, learning strategies, has not yet been developed but was included to remind teachers that children have learning styles just as teachers have teaching styles.

The remainder of the decoding checklist identifies those aspects of a teaching-learning situation that are not specifically involved in the teaching process.

One product developed in the strand was a scope and levels chart, with levels listed down the left-hand margin and major decoding elements identified in the top margin. Under each column were listed the decoding sub-elements that teachers included in the decoding program, as illustrated below:

Sample Section of Scope and Levels Chart

Level I	General	Articulation	
		Auditory	Visual
	Communication	Similarity/ Difference	Likenesses/ Differences
	Left to Right		
	Spatial Relation	Listening	Own Name
			Recognition of Letters

A second product developed in the strand was a set of activity cards such as the following:

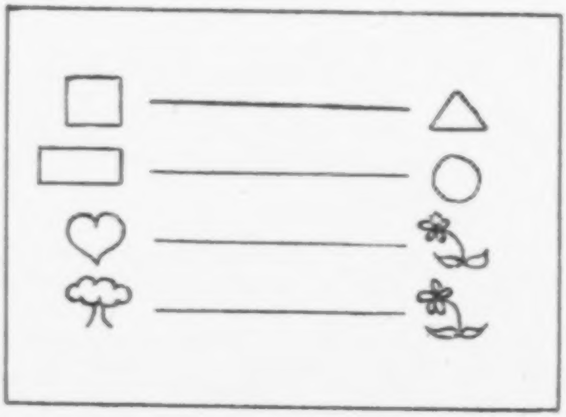
Sample Activity Card

Pre-Readiness Level I

Teacher's Name:

Purpose: To give children practice in moving from left to right, top to bottom.

Materials: 5" x 8" oaktag with approximately five velvet strips in the middle. Draw a shape or a common picture of some type at both ends of each strip as shown.



Activity:

(1) Tell the children they are going to take some walking trips with their fingers.

(2) Pass out the cards, giving one to each child.

(3) Ask them to use their eyes and fingers and walk from the □ to the △ , from ▭ to the ○ , etc.*

(4) Later on, or at a later date, have the children take a walk with only their eyes.

*This also serves to review the names of shapes, or whatever label you wish to reinforce with the children.

Strand members indicated that working on decoding was a rewarding and worthwhile experience. Although examining their own teaching was difficult, teachers found the analysis important in terms of understanding and improving their efforts with children in the decoding area. This particular group of teachers accepted the emphasis on structure because of a concern with how they structured their own reading programs. However, teachers not concerned with structure in their reading programs would be uncomfortable with this approach to developing a decoding program; in other words, given the highly technical aspects of decoding and the amount of information derived from linguistics, it is understandable that many teachers do not try to develop their decoding programs in a systematic manner.

The initial objective--of helping teachers examine their reading programs and develop alternative methods of teaching decoding--was only partially realized. Three teachers reviewed their programs and provided material for the scope and levels chart; in turn, the scope and levels chart provided a means of organization for those teachers. Thus, within the confines of the group, there developed a real interest in helping children "crack the code."

The decoding methods used by strand members combined analytic and synthetic phonics: one teacher consistently used the analytic method whereas others tended to mix the two approaches. The strand leader attempted to introduce the spelling pattern approach as an alternative means of teaching decoding skills, and one teacher did use some of these ideas, but in a supplementary manner only. No comparisons were made between methods of approach.

Slides, audio-tapes, and video-tapes of teachers were made during decoding lessons. A slide sequence of the language-experience approach to a decoding lesson depicts one method of organization and of teaching an initial consonant using the content of children's stories. A second slide series shows consonant substitution using spelling patterns (word families) and a chalkboard robot as the stimulus. Another series compares word families (spelling patterns) with children's last names and compares their first names with initial consonants substituted to build new words from the word family--for example, from the -at family: cat, hat, and mat.

Even after teachers become aware of decoding strategies available there still exists the problem of time to construct lessons using a clearly defined strategy for specific purposes with particular pupils. Teachers tend to operate intuitively or habitualy, not utilizing their awareness of the many instructional alternatives. To help pupils succeed, conscientious teachers construct what materials they can and search for commercial programs adaptable to their own teaching style. Instructional strategies used are significant in this process, and the purpose of this phase of the strand development was fostering an awareness of the instructional possibilities of various strategies.

The culminating activity of the first strand section was similar to the workshops presented by other strands—with video-tapes, slides, and materials illustrating the group's efforts in the decoding area.

As mentioned previously, there was no second decoding strand. However, during this period the strand leader worked informally with individual teachers. At a final workshop several components demonstrated various phases of the decoding area. Charts represented the decoding checklist as an observational scale and as an outline for developing a decoding program. Instructional strategies and interactive direction dimensions were displayed to indicate both the strategies and interactive direction categories for each lesson. The decoding strand booklet was divided by levels, each with sample activities. Available for teachers to examine were an audio-tape of an expository lesson, a video-tape of a guided-discovery lesson, and slides and an auditory tape of a guided-discovery lesson. Visiting teachers were informally guided through the various aspects of the materials developed by strand members.

Teachers viewing the displayed materials reacted positively to the structure, but it was also obvious that the materials were quite technical and would require thought and effort to incorporate into a reading program. Although interesting, a cursory overview did not offer the insights into instruction provided by the materials developed in the decoding strand. The strand emphasized a higher level than do most teachers: i. e., the emphasis was on structure and articulation rather than on "activities and games." Nevertheless, activities do contribute to decoding lessons, especially in the initial phase when the teacher must arouse the children's intersts.

Parent Participation

The primary objective of the parent participation strand was to develop a personalized approach for involving parents in the interests, needs, and learning activities of their children, with special emphasis on involving minority-group parents who might seldom participate in such a program. Within the limitations of time and funding, the DELTA staff helped teachers individualize their approach to interest parents as much as possible in helping their children at home.

A preliminary outline of objectives included the following:

1. Informing parents of the nature of Project DELTA.
2. Introducing the project staff to the community.
3. Informing parents of the program's progress.
4. Involving the project staff, teaching staff, children, and their families in informal interaction.
5. Creating an identification between the school and Project DELTA.

The first three objectives were to be achieved through information-oriented activities such as a project newsletter and articles for local newspapers and the District Newsletter. The fourth objective would focus on leisure activities such as picnics, potluck dinners, and jazz festivals in the school auditorium. The fifth objective was to materialize through workshops, classroom activities, students' artistic efforts, and children's pictures depicting parent involvement.

An unusually large attendance at the fall parents' night resulted partially from each child's carrying home a small descriptive brochure with a decorative cover illustrated by slide reproductions of school activities. In addition, through the director's efforts several articles about Project DELTA appeared in local newspapers. However, the parent participation strand lacked direction until it was totally reoriented in February.

Strand reorganization was initiated by requesting that each of the other four strands devote one meeting to surfacing ideas related to parent involvement. To accomplish the objectives, teachers suggested two methods: (1) a personalized, individual approach, and (2) a team approach. Examples of the personalized approach included the following:

a. The teacher invited parents to visit the classroom for a pot-luck supper followed by a teaching demonstration using children whose parents attended.

b. The teacher invited parents to view a video-taped lesson in reading or creative dramatics; the tapes informed, explained, and demonstrated not only the instructional content but also the children's reactions during the lesson.

Examples of the team approach included the following:

a. Teachers invited parents to participate in a workshop to construct phonics games.

b. Teachers organized and conducted a book exchange among students.

Teachers also utilized the team approach for the following activities involving all Washington School children and their parents:

a. Potluck night, featuring ethnic dishes and resulting in the complilation of the the recipes into a cookbook;

b. a book fair;

c. a book display in the media center during parent conferences;

d. use of a parent corps to direct playground activities.

In addition, teachers suggested various materials to be developed with and for parents, including a booklet containing suggestions for activities (to be completed jointly at home) related to oral and written expression, and decoding. Strand members also recommended compiling a resource booklet indicating inexpensive local outings for parents and children, with the outings designed to assist in the language experience approach. Useful to teachers would be a listing of parents with special skills (carpentry, sewing, mechanics, etc.) available to help children in the classroom. For pre-school children, a story hour in the media center would be valuable.

Indicated below are teachers' ideas in relation to parent participation in the other project strands.

For oral and written expression: (1) parents could act as scribes for a young child wanting to write a story; (2) the teacher could send home notes and samples of the child's work to inform parents of his progress; (3) when the family goes on an outing or a trip, parents could encourage children to write about the excursion to a relative or friend; and (4) the teacher could meet with parents to demonstrate the importance of helping a child verbalize his thoughts.

For literature and self-concept: Story Sharing Kits can be compiled using paperback books. During project DELTA such kits were developed with dissemination handled by either the teacher or the librarian. The books included in each kit are listed below:

Kit #1: Crictor
by Tomi Ungerer

The Great Whales
by Herbert S. Zim

Pick-a-Riddle
by Ennis Rees

Kit #2: The Story About Ping
by Marjorie Flack and
Kurt Wiese

A Rocket in My Pocket
by Carl Withers

Kit #3: Nothing Ever Happens on
My Block
by Ellen Raskin

Dolphins!
by Mickie Compere

I Know an Old Lady
by Rose Bonne

Kit #4: Blueberries for Sal
by Robert McClosky

Is This You?
by Ruth Krauss and
Crockett Johnson

Kit #5: The Five Chinese Brothers
by Claire Huchet Bishop
and Kurt Wiese

Amelia Bedelia
by Peggy Parish

Snakes
by Herbert S. Zim

Kit #6: Whistle for Willie
by Ezra Jack Keats

The Teeny Tiny Woman
by Margot Zemach

Kit #7: Red Fox and His Canoe
by Nathaniel Benchley

Spooky Magic
by Larry Kettelkamp

Aligators and Crocodiles
by Herbert S. Zim

Kit #8: The Case of the Hungry Stranger
By Crosby Bonsall

Dinosaurs and More Dinosaurs
By M. Jean Craig

Kit #9: No Roses for Harry
By Gene Zion

The Arrow Book of Jokes
And Riddles
Illust. by William Hogarth

Kit #10: The Adventures of Three
Blind Mice
by John W. Ivimey

Barrel of Chuckles
by Ann McGovern

The culminating activity of the parent participation consisted of two group discussions. During the first discussion, titled Do Teachers Want Parents Involved in the Schools? no definite conclusion was reached, with the group expressing the feeling that the answer would depend upon the characteristics of the specific school. The second discussion, titled Should Black Studies Be Taught in the Primary Grades? was well attended with active audience participation. The group was divided with very firm opinions voiced, and no definite conclusion was reached.

Transferring Strand Skills and Content

In working with new and divergent groups of teachers, the strand leader encounters a major problem at the outset of the project in that he has no way of knowing the characteristics of any given teacher. Teachers who are supportive as well as productive will be the ones most involved in the process of developing the program; this involvement should lead in turn to long-range behavioral change in this group. On the other hand, teachers who are supportive but non-productive will gain less from the process but will tend to use the products developed; they too will undergo change--although without the leadership provided by the project staff, these teachers will not be able to develop a program.

A second problem arises when transferring products to a new group of teachers who have not been involved in the process of development and have therefore not internalized the product. If the product fits the individual's teaching style and personality, there is little difficulty encountered; however, if the product is foreign to the teacher's style and personality, there will be a definite tendency to follow tangents and to attempt developing a totally new product. Because this problem occurred in Project DELTA when the teachers shifted from one strand to another at mid-year, it seems apparent that the problem would also exist in a new school setting.

Pre-Service Education in Reading-Language Arts

In previous years, student teachers assigned to Washington Elementary School did their practice teaching in the classrooms and then returned on specified days to the University of California campus for course work in reading-language arts, mathematics, social studies, etc. However, because Project DELTA incorporated a pre-service education component, it was arranged for the sixteen pre-service students to remain at the school site for their course work in the reading-language area. In addition to adhering closely to content initiated during the summer institute, the rationale and framework for the pre-service course paralleled strands the project was developing with the supervising teachers.

At a seminar meeting during the summer institute, the class instructor and the supervising teachers discussed the reading-language course, selecting the content and suggesting the following sequence for introducing the material to student teachers:

1. Classroom Organization and Climate
2. Evaluation of Reading Progress
3. Oral and Written Expression
4. Comprehension and Critical Thinking
5. Decoding
6. Literature and Self-Concept
7. Parent-School Relations

For each content area of the course, students received copies of a bibliography and at least one article providing a rationale and framework for reading-language arts at a cognitive level approximating the student's development.

Project staff members supervised five of the sixteen student teachers; various activities for the reading-language course were conducted in the DELTA facilities; and project equipment, such as audio- and video-recorders, was readily available to pre-service students.

Soon after the opening of school the supervising teachers and the instructor decided to divide into two weekly meetings the three-hour time block scheduled for the reading-language course. During the first meeting (one hour) students would be introduced to content by such means as colored slides featuring classroom grouping practices or use of observational scales to assess oral and written language, decoding, and self-concept, for example. The DELTA strand leaders were also invited to present to the class the content of each strand.

At the end of this first hour, each student was assigned a task--ranging from individual to small-group assignments--to be completed prior to the next two-hour class meeting. Individual tasks included such activities as administering an informal diagnostic inventory to a child reading below grade level or conducting an informal interview using an interest inventory to determine a child's preferences, interests, and hobbies related to reading. Each student teacher met individually with the instructor to evaluate results of the informal inventories. Small-group assignments included three classroom observations occurring at a point in the course when pre-service students were discussing classroom organization, oral language activities, and comprehension and critical thinking skills. Supervising teachers (five per demonstration) planned the lessons to exemplify the content being discussed. Three student teachers and the course instructor attended each classroom demonstration: as a guide for focusing on specific features, students used checklists pertaining to the demonstration content.

The weekly two-hour session, devoted to small-group discussion relating to the demonstration lessons, provided an opportunity for students to share observations and reactions to classroom demonstrations. Following this sharing activity, the group critiqued the checklist as both an observational tool and an evaluation instrument.

Because supervising teachers discovered that the Parent-School Relations topic would not be introduced by the time parent conferences were scheduled at Washington School, discussion of this topic was shifted in the course sequence. Therefore, student teachers were able to participate in parent conferences and to explore the significant features of conference reporting in contrast to formal report cards.

Only two sessions of the ten-week class had been allotted to decoding, an essential element of the reading process. When pre-service students requested that an additional ten hours be devoted to this area, instructors of other courses voluntarily relinquished time so that students could continue their efforts in decoding.

In summarizing the pre-service reading-language course, the following positive aspects were identified:

1. Class sessions were conducted at the school where students were practice teaching.

2. The supervising teachers and the instructor jointly developed the course content, activities, and evaluation procedures.

3. Student tasks were developed which supervising teachers considered important for training in reading-language arts.

4. Supervising teachers helped illustrate theory in practice by participating in classroom demonstrations.

5. Pre-service teachers' classroom responsibilities were coordinated with course assignments and tasks.

6. By observing student teachers in the classroom, the instructor was familiar with their experiences.

7. Supervising teachers accepted the course content as an important structure to be developed with pre-service teachers.

During the final evaluation of the pre-service reading-language course, the following negative aspects were mentioned:

1. Ten weeks is too short a period to adequately prepare future teachers in reading-language arts.

2. Students seldom found time to read background material pertaining to topics being discussed in the course.

3. Divergent philosophies of reading and language instruction prevented several students from obtaining information necessary to them as future teachers.

4. Concern with discipline problems or preparation of teaching assignments for the following day interfered with maximum participation in course work.

These four negative aspects should be considered in planning future reading-language courses. Possibly each factor could be resolved if instructors and students expended the time and energy necessary to identify alternative solutions to these problems.

VIII. CONCLUSIONS AND RECOMMENDATIONS

Project DELTA can best be characterized as a research and development project with the purpose of designing and evaluating an in-service professional developmental model for enhancing literacy teaching abilities. Washington Elementary School was the on-site location of the project, which directly involved the administration, the 23 classroom teachers, the 5 resource personnel, and the 472 children in kindergarten through grade three. The model evolved through creation of five specific instructional strands: (1) oral and written expression, (2) literature and self-concept, (3) comprehension and critical thinking, (4) decoding, and (5) parent involvement. In conjunction with the University of California, a pre-service teacher-training component was moved from the University setting and also developed at the on-site location.

The research methodology of Project DELTA was designed to evaluate growth in children's reading and language performance from both developmental and experimental viewpoints.[1] Assessment of achievement growth not only involved standardized measures but also required developing new stimuli and measurement instruments to evaluate performance in the following areas: reading comprehension achievement, word analysis achievement, listening comprehension achievement, oral language expression, and written language expression. In addition, new instruments were devised to facilitate examining relationships between the following: teacher rating of oral expression and language performance; dialect variations and language comprehension; dialect variations and spelling performance; ethnicity and dialect preference; ethnicity and self-concept as a language user; and teacher questioning levels and strategies and student response levels and strategies.

A basic assumption of the project was that the most significant agent for effecting educational change is the classroom teacher who assumes the final instructional responsibility for curriculum implementation with individual youngsters. At the same time, however, research literature clearly recognizes that programs concerned with literacy instruction have been inadequate in accommodating needs of minority children in the educational enterprise; therefore project efforts focused on needs of the inner-city child within the school and community context. Thus, the research component emphasized evaluating reading-language achievement resulting from development and implementation of innovative professional education strands compatible with needs of urban youngsters.

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[1] See Chapter IV for definitions and discussion of developmental data, experimental data, DELTA Treatment, and Control Design Treatment.

The following conclusions and recommendations will include findings on both formative and summative data. Although specific hypotheses will not be restated, each basic guide question and exploratory question will be discussed. Order of presentation will parallel the organization of Chapter VI (formative data) and Chapter VII (summative data) with references to tables and figures so that the reader interested in a particular finding can refer to the appropriate section for a complete discussion.

Formative Data

1. Reading Comprehension Achievement

Basic Guide Question: What gain in reading comprehension achievement dould be expected for children in different ethnic and socio-economic classifications in grade one, grade two, and grade three?

For developmental data, it was concluded that pre-post scores on reading comprehension differed significantly for children in all ethnic and socio-economic classifications at each grade level. Furthermore, with the exception of Black children in grade two, achievement gains reflected a minimum of one month's growth for each month of instructional time for all children, thus indicating the practical significance of the gains. (Ref.: Table 2, p. 71; Figure 1, p. 74; and Table 3, p. 75)

Experimental findings revealed that, in contrast to the Control Design Treatment, the DELTA Treatment had greatest impact with Other children at grade one (.4 of a year difference) and with Low SES children (.6 of a year difference). However, nonsignificant trend gains, favoring the DELTA Treatment over the Control Design Treatment, occurred for all eighteen contrasts. These trend gains ranging from .1 to .6 of a year, also support the impact of the DELTA Treatment on developmental gains cited above. (Ref.: Table 4, p. 78; and Table 5, p. 79)

Although greatest overall growth was achieved by children in grade three, achievement discrepancies were observed between Black children and White and Other children (1.4 years and .5 of a year, respectively) and between High and Low SES groups (1.0 year). These discrepancies, increasing from first grade through third grade, appear to result from several factors including differences in the hidden home curriculum (see later discussion on variation in kindergarten and first grade reading scores) and the lack of fit between the school curriculum and reading-language needs of minority children. The gain of 1.1 years for all children in grade three clearly indicates that Black children are able to achieve substantial gains in reading comprehension when provided with appropriate curriculum experiences.

2. Word Analysis Achievement

Basic Guide Question: What gain in word analysis achievement could be expected for children in different ethnic and socio-economic classifications in grade one, grade two, and grade three?

For developmental data, it was concluded that pre-post scores on word analysis differed significantly for children in all ethnic and socio-economic classifications at each grade level. In addition, achievement gains reflected a minimum of one month's growth for each month of instructional time for all children, with the exception of Black children in grade one and Low SES children in grades one and two. (Ref.: Table 6, p. 81; Figure 2, p. 82; and Table 7, p. 84)

Experimental data revealed significant differences favoring the DELTA Treatment for Other children in grades one and three, with gains of .6 of a year and 1.0 year, respectively. However, thirteen of the eighteen contrasts occurred in the direction favoring the DELTA Treatment over the Control Design Treatment. These nonsignificant trend findings, ranging from .2 to .6 of a year, lend directional support to the developmental findings identified above. (Ref.: Table 8, p. 86; and Table 9, p. 87)

First grade word analysis scores reflect a growth rate comparatively slower for Black children (.5 of a year) than for White (1.2 years) and Other (1.3 years) children. This difference in growth rate appears directly related to the limited pre-reading skills possessed by Black children entering grade one. (See later discussion on reading readiness.) Again, a basic problem exists in matching first grade reading curriculum to the reading-language performance of minority children.

Another important finding on word analysis achievement revealed that for low-achieving children scores regress during the summer vacation period. This pattern, also present in reading comprehension scores, suggests that until the child's reading achievement reaches a minimum independence level--as indicated by a grade equivalency of 2.5 years or above--regression can be expected. White and Other children develop reading independence in second or third grade whereas Black children demonstrate the regression phenomenon at all grades.

3. Listening Comprehension Achievement

Basic Guide Question: What gain in listening comprehension achievement could be expected for children in different ethnic and socio-economic classifications in grade one, grade two, and grade three?

For developmental data, it was concluded that pre-post scores on listening comprehension differed significantly for children in all ethnic and socio-economic classifications, with the exception of Other children and Low SES children in grade two. Furthermore, achievement gains reflected a minimum of one month's growth for each month of instructional time for all children, with the exception of Black and Low SES children in grade one. (Ref.: Table 10, p. 89; Figure 3, p.90; and Table 11, p. 92)

Experimental findings revealed significant differences favoring the DELTA Treatment for Black children in grade three (.6 of a year gain) and with High SES children in grade two (1.0 year gain). Although the magnitude was not sufficient to reach the required significance level, fifteen of the eighteen contrasts favored the DELTA Treatment, with trend differences ranging from .1 to .7 of a year. (Ref.: Table 12, p. 94; and Table 13, p. 95)

In grade one the low listening comprehension achievement of Black children compared to White and Other children (a difference of 1.9 and 1.5 years, respectively) parallels the previous findings on word analysis achievement. Additionally, in grade three a marked achievement discrepancy was again observed between Black and White children (1.5 years) as well as between High and Low SES children (1.3 years).

4. Reading Readiness Achievement

Basic Guide Question: What gain in reading readiness achievement could be expected for children in different ethnic and socio-economic classifications in kindergarten and grade one?

In kindergarten and grade one, it was concluded that pre-post reading readiness scores differed significantly for children in all ethnic and socio-economic classifications. These gains appear to represent substantial practical growth in readiness ability with all kindergarten children achieving an "average" or "high normal" readiness level and all first grade children reaching a "superior" level, with the exception of Black children who achieved a "high normal" level. (Ref.: Table 14, pp. 99; Figure 4, p. 100; and Table 15, p. 102)

The research design provided for experimental data only at the kindergarten level. Significant differences, favoring the Control Design Treatment over the DELTA Treatment, were identified for Black children and for High SES children; nonsignificant trend differences also favored the Control Design Treatment in six comparisons. (Ref.: Table 16, p. 104) Although the magnitude of the experimental differences was not great, these results were unexpected. In retrospect, although attention was directed to kindergarten curriculum planning, development was emphasized less at this level than in grades one, two, and three. Future curriculum planning related to the DELTA model must devote special attention to kindergarten children and, as previously mentioned, to the needs of children in pre-kindergarten home and nursery settings. Based on the significant and trend differences--predominately favoring the DELTA Treatment at grade one for reading comprehension, word analysis, and listening comprehension achievement scores--one would expect that reading readiness findings at grade one would have favored the DELTA Treatment over the Control Design Treatment. This speculation, however, could not be tested with the data available.

In both kindergarten and grade one, a substantial discrepancy was observed between the initial readiness level for Black and for White and Other children. This variation is clearly illustrated by the finding that in kindergarten and grade one post-test readiness scores for Black children fail to reach the level of pre-test readiness scores for White and Other children. As previously discussed, a similar achievement discrepancy occurred for reading comprehension, word analysis, and listening comprehension achievement. In these critical areas, at least part of the ethnically-related achievement discrepancy undoubtedly results from the lack of fit between the initial learning needs of the Black child and the reading-language curriculum of the school. This difference demands that kindergarten and first grade curriculum be altered to meet reading readiness needs of Black children in order to provide a successful learning environment. Schools should consider the potential value of education programs designed to help parents better understand how informal readiness activities contribute to the hidden home curriculum. Education should also devote attention to pre-kindergarten nursery school programs with a wide range of language and auditory-visual experiences constituting a readiness base for reading instruction. These experiences should be formulated to relate specifically to the language, home, and community environments of children involved. Furthermore, television programs such as Sesame Street, Misterrogers, and the Electric Company should be analyzed for labels, concepts, and perceptual dimensions which can be reinforced in the home and school curriculum to more effectively develop reading readiness. As stated previously, it is important to realize these recommendations do not suggest that the hidden home curriculum of White and Other children be transposed into the homes of Black children but rather that the experiences already existing are not being utilized or developed to increase reading readiness levels of Black children. The language labels, concepts, and experiences which Black children bring to the school setting must be incorporated into the reading readiness curriculum.

5. Reading-Language Achievement Patterns

Basic Guide Question: What achievement patterns are present for reading comprehension, word analysis, and listening comprehension achievement scores for children in different ethnic classifications in grade one, grade two, and grade three?

An extensive inspection of pre-post scores revealed six exclusive patterns; indicating relative achievement strengths and weaknesses in reading comprehension, word analysis, and listening comprehension. The six representative patterns do not stipulate grade-level achievement because the purpose was to graphically display relative strength or relative weakness in each of the three areas, regardless of position in relation to expected age-grade norms. Teacher use of these achievement patterns should provide an important tool in identifying children's instructional needs. (Ref.: Figure 5, p. 106)

From the graphic presentation of pre-post developmental data, it was concluded that achievement patterns generally differed by ethnic classification at various grade levels. (Ref.: Figures 6, p. 109; 7, p.111; and 8, p. 112) In grade one Black children exhibited relative weakness in listening comprehension but relative strength in reading comprehension and word analysis (Pattern 3). White and Other children exhibited relatively strong listening comprehension achievement but relatively weak reading comprehension and word analysis achievement (Pattern 1). In grade two, pre-test patterns paralleled those discussed above for Black and White children, whereas Other children reflected nearly equal achievement on all three skills. Post-test scores for Black children revealed a pattern very similar to the pattern of Other children although, comparatively, the scores were depressed. Post-test scores for White children again followed Pattern 1. In grade three post-test scores revealed similar patterns for Black and White children with relative weakness in word analysis and relative strength in reading and listening comprehension (Pattern 6); Other children again demonstrated a similar performance on all three variables (Pattern parallel--high).

It is anticipated that the patterns will be of practical value to the classroom teacher as the instructional program is developed to meet children's differing needs. As test situations are examined, however, variation in achievement performance may be attributed to several factors including the following: (1) unfamilarity with labels and concepts used in test situations, i.e., failure to understand the task; (2) unfamilarity with labels and concepts being evaluated by the instrument; (3) difficulty in attending to and processing oral stimuli presented in standard English; (4) difficulty in correctly interpreting picture test items in response to oral stimuli; and (5) little understanding of test-taking behavior, e.g., elimination of obvious detractor item to enhance the possibility of selecting the correct response. When interpreting test results, the classroom teacher and the reading specialist should pay careful attention to these dimensions. For example, factors 1, 3, 4, and 5 as identified above could partially explain the relatively low performance by minority children in test situations. It is important that teachers examine these behavior dimensions in relation to children's performance.

6. Oral Language Development--Average Words Per Communication Unit

Basic Guide Question: As measured by average words per communication unit, what gain in oral language growth could be expected for children in different ethnic and socio-economic classifications:

For oral language elicited by the total transcript, it was concluded that significant growth occurred for Black and Other children in grade three and for High and Low SES children in grade three. No consistent trend differences were observed. The measure of average words per communication unit appears to be fairly sensitive across grades but not remarkably sensitive for pre-post evaluation within a grade level. (Ref.: Table 17, p. 114; and Table 18; p.115)

Language elicited by the Oral Multiple Picture Stimulus reflected significant growth for Black children and Mid SES children in grade three. In addition, consistent nonsignificant trend differences for children in all ethnic and socio-economic classifications favored post-test gains on average words per unit. These findings suggest that the Multiple Picture Stimulus elicits language performance more accurately reflecting language growth within grade levels than does the total transcript. (Ref.: Table 19, p. 117; Figure 9, p. 119 and Figure 10, p. 120)

7. Written Language Development--Average Words per Communication Unit

Basic Guide Question: As measured by average words per communication unit, what gain in written language growth could be expected for children in different ethnic and socio-economic classifications?

For language elicited by the Written Multiple Picture Stimulus, it was concluded that significant growth occurred only for Other children in grade two although consistent trend differences were observed for Black and White children in grades two and three. By socio-economic classification, significant differences were identified for Mid SES children in grade two and for Low SES children in grade three, with consistent trend differences occurring for High and Low SES children in grade two and for High SES children in grade three. (Ref.: Table 20, p. 121)

A comparison of oral and written language growth--as elicited by the Multiple Picture Stimulus and measured by average words per unit--revealed that oral language production of second and third-grade children in all ethnic groups generally exhibits higher average words per unit than does written language production, with the exception of Other children for the second-grade post-test and the third-grade pre-test. (Ref.: Figure 11, p. 123; and Figure 12, p. 124)

8. Oral Language Development--DELTA Oral Language Observational Scale

Basic Guide Question: As measured by the DELTA Oral Language Observational Scale, what gain in oral language growth could be expected for children in different ethnic and socio-economic classifications?

It was concluded that no significant differences occurred for any ethnic or socio-economic contrast--based on language elicited by the Oral Multiple Picture Stimulus--for children in grades two or three. However, nonsignificant trend differences for Black children and for High and Mid SES children in grade three paralleled previous trends discussed under Guide Question Six for oral language growth. As with the measure of average words per communication unit, ratings on the DELTA Oral Language Observational Scale appear more sensitive in measuring oral language across grades than within a grade level. (Ref.: Table 21, p. 126)

9. Written Language Development--DELTA Written Language Observational Scale

Basic Guide Question: As measured by the DELTA Written Language Observational Scale, what gain in written language growth could be expected for children in different ethnic and socio-economic classifications?

It was concluded that significant differences occurred for all ethnic and socio-economic contrasts--based on language elicited by the Written Multiple Picture Stimulus--with the exception of Low SES children in grade two. The findings also indicate that for second and third grade children, the DELTA Written Language Observational Scale represents a more sensitive measure than average words per communication unit for language elicited by the Multiple Picture Stimulus. (Ref.: Table 22, p. 128)

A comparison of oral and written language growth--as elicited by the Multiple Picture Stimulus and measured by the DELTA Observational Scales--revealed a consistent progression of oral and written language growth through grades two and three. Although the third-grade pre-evaluation ratings on oral language exceeded the written expression ratings, the post-evaluation ratings on written language surpassed the oral language ratings for all ethnic groups. (Ref.: Figure 13, p. 129; and Figure 14, p. 130)

The precise nature of the greater sensitivity of the DELTA Observational Scales, particularly in measuring written language performance, should be explored in depth to provide both future researchers and classroom teachers with an evaluation instrument capable of measuring specific variables in children's language growth.

Exploratory Questions

1. Relationships Between Measures of Language Performance

Question: What relationship exists between various measures of oral and written language performance? (Ref.: Table 23, p. 132)

a. The correlation was .23 between average words per communication unit on the total oral transcript and the Teacher Rating of classroom oral language. Thus it was concluded that the measure of average words per unit accounts for only five percent of the variance in teacher ratings of oral language of children in kindergarten through grade three. Furthermore, the findings suggest that these two measures are evaluating different aspects of language growth.

b. Using the Oral Multiple Picture Stimulus, the correlation was .08 between the DELTA Oral Language Observation Scale rating and average words per communication unit. Therefore, for children in grades two and three, it was concluded that with little relationship existing between these two measures, the instruments are evaluating different aspects of language development.

c. For children in grades two and three, the correlation was .23 between the DELTA Oral Language Observational Scale rating of language elicited by the Oral Multiple Picture Stimulus and the Teacher Rating of classroom oral language. Since the identical instrument was used to obtain the two ratings, it was concluded that two possible explanations may explain the surprisingly low correlation: first, variation in language performance resulting from different language samples--i.e., oral language elicited by the Multiple Picture Stimulus and oral language used in the classroom; and second, reduced reliability in teacher ratings resulting from factors extraneous to the language scale--e.g., children's behavior patterns or dialectal variations. Both of these plausible explanations for the unexpectedly low correlation deserve further research.

d. Using the Written Multiple Picture Stimulus, the correlation was -.02 between average words per communication unit and the DELTA Written Language Observational Scale rating. This finding parallels that identified in Question b above. It was concluded that these two measures are evaluating different aspects of written language performance for children in grades two and three.

e. Using the Multiple Picture Stimulus, the correlation was -.07 between children's oral and written language performance as measured by average words per communication unit. It was concluded that the unexpectedly low correlation may reflect the lack of sensitivity exhibited by average words per unit as a measure of the written language development of children in grades two and three. The low correlation may also depend upon the developmental level of oral and written expression; beyond the primary grades, expectation of a closer approximation of children's oral and written language styles would predict a relatively higher positive correlation.

f. Using the Multiple Picture Stimulus, the correlation was .49, based on second and third-grade oral and written language samples as measured by the DELTA Observational Scales. The magnitude of this correlation indicates that the written language measure accounts for approximately 24 percent of the variance in the oral language performance--a finding substantiating the relationship between oral and written language development as measured by the DELTA scales.

2. Ethnically-Related Dialect Features and Listening Comprehension

Question: What relationship exists between ethnic classification and performance on the standard and nonstandard dialect features of the Listening Comprehension Inventory?

In grades two and three, Black children selected significantly more nonstandard and detractor items on the Listening Comprehension Inventory than did White children, and Other children selected nonstandard items more frequently than did White children. Children classified as White were found to select standard responses approximately 15 percent more often than did Black or Other children in grade two and 10 percent more often than did Black children in grade three. However, administration of an alternate form of this instrument--designed to provide additional sentence meaning clues--revealed that meaning ambiguity resulting from homophones was nearly eliminated for Black and Other children. (Ref.: Table 24, p. 137)

To apply these findings, the classroom teacher must be constantly aware of word labels which are homophones for the nonstandard speaker and must provide as complete a meaning context as possible in order to eliminate these ambiguities for children speaking a nonstandard dialect.

3. Ethnically-Related Dialect Features and Spelling Achievement

Question: What relationship exists between ethnic classification and performance on the standard and nonstandard dialect features of the Phonological Spelling Inventory?

On the Phonological Spelling Inventory, the performance of third-grade Black children was significantly below that of third-grade White children.[1] With a total of 25 items in the inventory, Black children had a mean of 6.20 words spelled correctly, compared to a mean score of 14.14 spelled correctly by White children. A word-by-word analysis revealed that most children either developed a standard spelling representation of each word or attempted to spell each word phonetically. (Ref.: Table 25, p. 139)

For Black children two problems seemed to be dialect-related. First--simplification of final consonant clusters: e.g., ld → d, resulting in the spelling of told as towd. Second--hypercorrection, possibly reflecting the child's previous encounter with standard spelling in the classroom. For example, the phonetic [w] was replaced with r, so that foe was spelled as for or four or fore. In other words, the child assumed he should have heard an [r]. Because this latter problem occurred most frequently when the child was provided with limited semantic clues to the word meaning, the finding emphasizes that it is important for the teacher to provide as complete a meaning context as possible in spelling instruction for nonstandard speakers.

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[1] The inventory was administered at only the third-grade level.

4. Ethnically-Related Dialect Features and Language Preference

Question: What relationship exists between ethnic classification and performance on the standard and nonstandard dialect features of the Language Preference Inventory?

On the Language Preference Inventory, third-grade Black children selected significantly more nonstandard forms than did third-grade White children.[1] Although Black children selected twice as many nonstandard forms as White children selected (5.75 items compared to 2.48 items), this difference is not substantial on an inventory of 30 items. (Ref.: Table 26, p. 141)

Black children did not exhibit a preference for nonstandard language forms to the degree one might expect in a typical urban center. This may be due to the integrated housing pattern surrounding Washington School or is perhaps related to the child's perception of teacher preference for a specific language form. Possibly community and school integration results in a language preference which does not differ greatly in practical application for Black, White, and Other children. However, this aspect of the study merits further investigation.

5. Ethnic Classification and Self-Concept

Question: What relationship exists between ethnic classification and performance on the I AM Self-Concept Assessment Instrument?

In regard to positive and negative self-concept as a language user, no significant relationship could be identified by ethnic classification. Data indicated that White children selected significantly more neutral responses than did Black children although the mean difference was so slight that the contrast provides little of practical significance. (Ref.: Table 27, p. 143)

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[1] The inventory was administered only at the third-grade level.

The most significant finding on this exploratory question is that all ethnic groups predominately selected positive responses in both second and third grades. This finding, plus the lack of significant differences across ethnic groups, suggests that the children--acutely aware of the instrument's purpose--were influenced by their perception of teacher preference favoring positive responses. It is also possible that the forced choice of positive and negative items resulted in many children feeling peer-group pressure to consistently project themselves as happy persons. This research dimension deserves further consideration from the standpoint of instrumentation development and exploration of the relationship between ethnic classification and reading-language self-concept.

6. Teacher Questions and Responses--Levels and Strategies

Question: As identified by the DELTA Comprehension Taxonomy, what questioning levels and strategies are used by teachers in classroom instruction?

a. Teacher questions at the factual level comprised 68 percent of all questions identified, whereas questions at the interpretive level occurred approximately 32 percent of the time. In other words, during the video-taped presentation, teachers used twice as many factual as interpretive questions. These findings stress the need for teachers to consider the level of questions used in the classroom, placing greater emphasis on interpretive questions. (Ref.: Table 28, p. 146)

b. Focusing and extending strategies were used with greatest frequency, representing approximately 70 percent of all questions. The raising strategy occurred 16 percent of the time with controlling, receiving, and clarifying strategies occurring 5, 4, and 3 percent of the time, respectively. These findings suggest that teachers should consider additional use of clarifying and raising strategies, especially in developing comprehension at the interpretive level. (Ref.: Table 28, p. 146)

c. Generally, questioning strategies differed markedly in frequency of use at the factual level and at the interpretive level. The extending strategy was used 57 percent of the time at the factual level but only 20 percent of the time at the interpretive level. Although raising did not occur at the factual level, this strategy consumed nearly 50 percent of questions at the interpretive level. No receiving or clarifying occurred at the interpretive level; however, at the factual level these strategies were used 7 percent and

5 percent of the time respectively. Frequency of the focusing strategy was 25 percent at both levels, as was the case with the 4 percent frequency of the controlling strategy. These findings suggest that teachers could effectively increase the frequency of the raising strategy for developing meaning at the factual level and the frequency of clarifying and extending for developing meaning at the interpretive level. (Ref.: Table 28, p. 146)

d. In contrast to teacher questions, teacher responses occurred almost exclusively at the factual level (99 percent). This finding merits special attention in future curriculum planning as the nature and intent of teacher response is explored. It would seem desirable to encourage teachers to balance response levels between factual and interpretive, especially as one considers that children might derive modeling value from teacher responses at the interpretive level. (Ref.: Table 29, p. 148)

e. Teacher response strategies consisted almost exclusively of receiving and extending strategies, reflecting a frequency of 80 and 19 percent, respectively. Although this finding may be uniquely related to the video-taped presentation on which observations were based, one would not expect this to be the case. In developing response strategies, much more balance should be included, particularly in using clarifying and raising strategies. (Ref.: Table 29, p. 148)

f. A distinct difference was observed in the use of response strategies at the factual and interpretive levels. As previously mentioned in Question d, over 99 percent of teacher responses were at the factual level, consisting mainly of receiving and extending strategies. Only .5 of one percent of the teacher responses occurred at the interpretive level, as represented by the extending strategy. Therefore, careful attention should be given to including more balance in teacher responses at the interpretive level, especially by utilizing clarifying, extending, and raising strategies. (Ref.: Table 29, p. 148)

g. Teacher questioning levels and strategies appear to be related to pupil response levels and strategies. For example, the extending response strategy--providing additional information on an identical subject at the same comprehension level--seems to represent children's major response strategy at both the factual and interpretive levels. (Ref.: Table 30, p. 149)

This finding parallels data on teacher questioning levels and strategies, indicating that extending was the questioning strategy used most frequently by teachers (approximately 46 percent of the time). At the interpretive level, teachers used the raising strategy approximately 50 percent of the time although the children's interpretive response level reflects the use of the raising strategy only 8 percent of the time. This lack of fit at the interpretive level between teacher questioning strategy and child response strategy suggests that the teacher's raising strategies were too difficult for the children. As a result, children appeared to rely on the extending strategy to respond at the interpretive level. The children's high percentage (approximately 92 percent) of extending responses at the interpretive level further supports this contention. Again, these findings indicate careful attention should be directed to balancing questioning strategies and to a fit between the child's conceptual development, reflected by response strategies, and the teacher's questioning strategies and levels.

Summative Data

1. Implementation Process

Guide Question: What process similarities were noted in the development and implementation of each of the five strands constituting the model?

For the DELTA staff and the Washington School teaching staff, the development and implementation process is best described by the interchange sequence. This sequence, remarkably similar for each strand, consisted of what Hegel viewed as thesis-antithesis-synthesis or--with project-applied terminology--proposal, counter-proposal, joint proposal. During initial model development both the DELTA staff and the teachers expressed some discouragement with this process; however, as the two professional groups continued working together throughout the school year, the dynamic interchange between project and school staffs became respected as a cooperative process essential to developing refined strands superior to any which either group could have produced in isolation.

The psychology of this interchange may be understood to some degree if considered from the viewpoint of the genetic epistomologist, Jean Piagét.[1] As external stimuli are presented, the individual attempts to assimilate these structures to his internal schema--a difficult process often resulting in a type of disequilibrium. As the assimilation process progresses, the individual mentally manipulates the new information in terms of his present mental organization, searches for understanding, creates optional explanations, and is eventually able to adjust his old mental schema to accommodate the new set of information, thereby restoring equilibrium. In Project DELTA this process of equilibration can be operationally described as strand structure, counter-strand structure and discussion and cooperatively-developed strand structure.

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[1] Jean Piagét, "The Genetic Approach to the Psychology of Thought," Journal of Educational Psychology, 1961, 52, pp. 275-281.

2. Characteristics of the Effective Strand Leader

Guide Question: What characteristics should an effective strand leader possess to aid in developing the model in the local school?

An effective strand leader needs self confidence in his knowledge of reading-language instruction and yet must remain sufficiently flexible to consider alternative instructional practices in a non-threatening manner. The strand leader should be able to teach competently at the grade level of the project's emphasis in order to offer a model role by demonstration teaching while eliminating the possibility of being stereotyped as a theorist or academician totally unfamiliar with day-to-day classroom realities.

It is essential that a strand leader establish rapport with teachers participating in the project. He should also be aware of the varied characteristics of teachers he may encounter: e.g., supportive, productive versus anti-supportive, anti-productive. (See Guide Question 3.) To develop the model obtaining the best efforts of the teaching staff is obviously crucial, and the strand leader must realize such cooperation frequently depends on attitudinal or psychological differences rather than on intellectual differences.

Finally, it is extremely important that an effective strand leader be able to minimize his own ego-involvement in products he himself devises since part of the process frequently encountered with the school staff involves totally "shredding" a specific product and then cooperatively reconstructing the product. The strand leader must clearly understand the significance of this process in effecting teacher behavior change as described in Guide Question One.

3. Characteristics of Teachers

Guide Question: What teacher characteristics were observed to be most helpful and least helpful in formulating the strands and in implementing the model?

Teacher characteristics ranged along a continuum from highly supportive of project goals and highly productive in developing these goals to anti-supportive of the project direction and non-productive in developing project related instructional practices and options. As would be anticipated, the highly supportive, highly productive teacher readily accepted responsibilities and leadership roles beyond the normal project expectations; this individual was not only highly creative but also possessed an energy level enabling him to realize his creative ideas in practice.

The supportive, productive teacher supported project goals and produced within the confines of weekly strand-seminar meetings. Between this individual and the teacher described as highly supportive, highly productive, the major differences appeared to be time commitment and energy level. Teachers possessing these two sets of characteristics were of greatest value in project development.

The teacher described as supportive, non-productive "talked a good line" but demonstrated little ability to implement goals in practice. This failure may result from reticence, poor communication, little creativity, low energy level, or a combination of these factors. Such individuals may prove valuable in a project and may effect change in their teaching behavior if ideas can be developed by other teachers and demonstrated in practice.

Productive, non-supportive characterizes the teacher who remained neutral about project goals but felt some commitment based on initial agreement to participate in the project. This type of individual maintained a reasonable productivity during weekly strand-seminar meetings.

The non-supportive, non-productive teacher failed to support the project and contributed virtually nothing during weekly strand-seminar meetings. This individual usually was rather withdrawn, appeared to possess little creativity in the few ideas contributed, and exhibited almost no desire to consider instructional options to meet the varied child needs present in the classroom.

Offering a strange paradox in model development is the teacher described as anti-supportive, productive because such an individual was highly vocal in confrontations and expressed the opinion that project goals and objectives failed to meet children's needs. Although eager to follow tangents or personal concepts and unable to work toward group-established goals, this type of teacher was often valuable in project development by easing frustrations through short-term confrontations, causing other strand members to clarify their own rationale for instructional practice, and shifting responsibility to teacher-centered innovation.

The anti-supportive, non-productive teacher offered no support and instead provided constant confrontation challenging project goals in a highly critical and destructive fashion. This individual presented few options to replace goals under attack. However, this type of teacher is not generally representative.

To summarize--highly supportive, highly productive and supportive, productive teachers are of greatest value in curriculum model development. Supportive, non-productive and productive, non-supportive teachers can be valuable although to realize this group's potential, substantial creativity and energy must be provided by project staff and by supportive, productive teachers. The anti-supportive, productive teacher serves an important function by easing tension, and encouraging project staff and teachers to carefully examine their rationale for innovative practices. Finally, non-supportive, non-productive and anti-supportive, non-productive teachers offer little or nothing of value in model development. The project staff must exert an extensive effort to help these individuals clearly understand the purpose of the curriculum model and must demonstrate how it can meed the needs of children in their classrooms. Hopefully, such teachers can be convinced of the value of their support and productivity in successful model development. Fortunately, the majority of teachers participating in Project DELTA could be characterized as highly supportive, highly productive or supportive, productive in model development.

4. Developing the Model Skills and Content

Guide Question: What skills and content should be included in an in-service education model in the local school?

Based on experience from developing and implementing the DELTA model, the following skills and content areas should be included in an integrated emphasis: (1) oral and written expression, (2) literature with emphasis on self-concept development, (3) comprehension and critical thinking, and (4) decoding or word analysis skills.[1]

Because research indicates that oral language is the base for a child's further language growth, oral language should be directly related to the development of written experssion, literature experiences, comprehension skill, and decoding skill. The instructional program in oral and written language should emphasize the child's quality of thought, organization of expression, quality and control of language, fluency in language, personal response to language, and technical skills. Specific attention should be directed to dialect variations so teachers become aware of the consistency of nonstandard language forms; in addition, teachers should be encouraged to examine their attitudes toward nonstandard language forms which may be used in stereotyping the minority group child speaking a nonstandard dialect.

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[1] The parent involvement strand will be discussed under Guide Question 6.

An emphasis on literary experiences and self-concept should help the teacher develop (1) an awareness of basic life themes expressed in literature, (2) a knowledge of the broad range of appropriate uses of literature, and (3) the ability to match literature experiences with needs and interests of children--particularly inner-city children. The teacher should focus on encouraging the child to enjoy reading. In the Project DELTA literature strand, two very successful dimensions related to helping children develop as individuals and as members of a group. The objective of individual development stressed establishing individual identity, establishing identity as a child, and handling emotions; the objective of developing as a group member emphasized establishing group identity, teamwork and cooperation, contributions of group similarities and differences, and family relations. Each of these dimensions was related directly to interests of inner-city youngsters.

To implement literature selections in the classroom, Washington School teachers found the following instructional approach useful: (1) help the child surface the background he brings to the story; (2) help the child conceptualize parallels between himself and story characters and actions; (3) ask open-ended questions which can be solved by a variety of alternatives; and (4) use child-initiated responses to aid development of numbers 1, 2, and 3 above.

The development of comprehension and critical thinking skills should concentrate on helping teachers move away from exclusive dependence on factual questions toward formulating questions which elicit the child's interpretation and application of relevant information. It is essential that teachers develop a sensitivity so that questioning strategies elicit meaningful responses rather than stifling the child's natural inquisitiveness. Teachers commonly use controlling, ignoring, and receiving strategies while neglecting more powerful questioning strategies. Special emphasis should be directed to the clarifying strategy (question designed to redefine previous information), the extending strategy (question designed to elicit additional information on the identical subject at the same comprehension level) and the raising strategy (question designed to elicit information on the identical subject at a higher comprehension level).

Decoding or word analysis focus should stress knowledge of decoding content and decoding strategies used in instruction, an emphasis which should encourage teachers to examine various printed language units as well as to develop alternate methods for translating a specific unit to its oral counterpart--e.g., sound-symbol correspondence, graphonic base, and sentence context. To be effective, decoding knowledge and strategies must relate not only to text materials used in the school but also to specially-designed decoding lessons for use with a variety of instructional approaches such as the language experience approach.

Furthermore, decoding content for teachers must account for special problems of minority group children speaking a nonstandard dialect. It is essential that the classroom teacher comprehend the nature of the child's nonstandard language if she is to differentiate his reading problem from his correct reading translation using highly regular phonological and grammatical forms. The understanding of nonstandard forms will also be valuable in formulating effective spelling instruction for children speaking a nonstandard dialect.

5. Implementing Skills and Content

Guide Question: How can the skills and content be most effectively implemented in the local school?

The experience of Project DELTA indicates that in-service professional development programs should move to the school community and be implemented in an on-site location rather than at the central administration office or in a university classroom--both remote from day-to-day teaching realities. Although total staff involvement in a project is desirable, some degree of self-selection should be considered in regard to teacher participation. Those few teachers with no desire to participate will require a disproportinate expenditure of staff time and effort if their involvement is demanded; these teachers , described under Guide Question 3, are characterized as non-supportive, non-productive and anti-supportive, non-productive. As previously mentioned however, there is always hope that the behavior of these teachers can be altered to result in supportive, productive individuals.

Development and implementation of the professional program should initially involve a planning team including the school principal and teachers selected by the school staff. Project and school staff members who are intensively involved in formulating the framework for the curriculum model should anticipate the interchange confrontation sequence of proposal, counter-proposal, joint proposal as described in Guide Question One. An understanding of the psychology of this process will be of sustaining value to the planning team when the first confrontation occurs with the school staff. It is extremely important to provide for open communication with the total school staff through instructional team representatives or grade level representatives, for example.

As various instructional components of the training model are developed, another necessary provision is for teacher options. In the case of Project DELTA, five strands were initiated at the beginning of the school year with each teacher electing to participate in the strand of his choice. At mid-year, following strand workshops which displayed the process and products of the five groups, teachers again selected strand options for the remainder of the school year. Therefore, the self-selection process provided for strand content and teacher interest. As the model continues in the on-site location the majority of teachers will eventually rotate through the strands from first to last choice options.

Extensive summer pre-planning by the project staff, school principal, and representative teachers is required to facilitate the fall initiation of the professional development model. A concentrated institute effort preceding the opening of school is highly desirable for familiarizing teachers with the nature of the process and the proposed content of the curriculum model. Although the institute demands careful planning to be productive, it is important that teachers fully realize their contributions to development are essential if the model is to succeed in the school. Project DELTA was basically a process model, and even though content was presented with some structure, great flexibility existed as the model developed. Most teachers had to adjust somewhat to the process approach because previous experience in curriculum projects had established a mental closure anticipating a product externally developed and packaged.

From the DELTA institute of three weeks, it was concluded that the shorter time-span of two weeks would more effectively guarantee teacher participation and institute efficiency. A desirable format would consist of a consultant speaker in the morning followed by opportunity to interact with the speaker as content is related to classroom instruction. Small group discussions should occur early in the afternoon. Content presented by the consultant speaker should relate specifically to a workshop scheduled the following day; it is extremely important that all workshops include active teacher participation. Within a two-week institute patterned on this format, at least five model strands could be introduced.

Throughout the school year time must be provided for teachers to participate in the self-selected strands. Hopefully, educational systems will soon recognize the necessity of teacher release time for professional development; however, until that innovation occurs, a regular weekly meeting should be scheduled before or after school. The strand leader should encourage teachers to contribute to the developmental process and content of the strand. Classroom ideas should be shared and related to the strand framework reflecting children's instructional needs. This idea sharing can be greatly facilitated by rotating the weekly meeting location to classrooms of individual strand members. The group should anticipate strand culmination several weeks in advance and plan an opportunity to share professional development with the total school staff. The culminating activity serves several functions including motivating strand members to develop a precise rationale for strand products as they explain ideas and materials to other teachers; synthesizing strand activities for participating members; providing for the total school staff a summary of strand content and process which may be valuable to the instructional program; and helping teachers actively participating in another group to obtain an overview of all strands in order to more effectively self-select a specific strand for future participation. In addition, the school principal should be constantly involved as an active participant throughout the total process described above.

6. The Role of Parent Involvement

Guide Question: What role should parent involvement play in the development of the model?

Important for developing any successful curriculum model, parent involvement is essential when developing a model for inner-city schools. A parent participation strand should primarily emphasize actively involving parents, especially minority parents, in the interests, needs, and learning experiences of their children. Initially this involvement can be accomplished by picnics and pot-luck suppers followed by opportunities for meeting in small neighborhood-oriented groups to establish cooperative goals for child achievement. Child-care provision at the school, important for social and educational events, is required to successfully involve working parents.

A parent participation strand should also encourage parents to actively engage their children in language by exchanging ideas with their youngsters, establishing a regular time for story-telling or story-reading, and jointly participating in educational games which necessitate language use. Parents should understand their significant role of directing the hidden home curriculum. The parent involvement strand should utilize content from the other program strands of oral and written language, literature and self-concept, comprehension and critical thinking, and decoding. Parents can and must participate more directly in the educational process.

7. Transferring Strand Skills and Content

Guide Question: What key factors should be considered in transferring strand skills and content from one group of teachers to another?

Transferring model skills and content developed by teachers in one school to teachers in a second school requires careful planning. First, the principal and teachers in the new school should offer some degree of commitment to the model's process nature and to products which already have been developed or which have potential for development. This commitment can best be realized by inviting the new principal and representative teachers to observe the model school in operation. A clear understanding of support and productivity demands should be established because active participation of both principal and staff is essential if the model is to successfully effect teacher behavioral change.

Second, the model staff should visit the potential transfer school to become acquainted with the reading-language instructional curriculum currently in use. Such a visit should also provide insight into teacher characteristics, quality of instruction, the principal's and teachers' commitment to educational innovation, and the staff energy level.

Third, as the process model is transferred to the new school a panel of teachers from the model school should describe the nature of the model, including limitations and values, to the total staff of the new school. Although some "products" developed in the first school will be readily available for implementation in the new school, the model should still maintain a process orientation, thereby assuring teacher involvement and providing a self-renewing dimension as new groups of teachers cooperatively develop process and content in various strands. As skills and content are implemented with new teachers, the model staff will need to consider components discussed in Guide Question 5.

8. Pre-Service Education at the Primary School Site

Guide Question: What values and limitations were present in moving the pre-service teacher education reading-language course from the University to the primary school site?

By developing the pre-service reading-language course on the school site, direct cooperation was obtained from master teachers involved in Project DELTA. These teachers actively participated in helping plan content related activities, and evaluation procedures for the pre-service reading-language course. They were highly supportive in translating theory into practice by teaching classroom demonstration lessons. Student teachers were thus involved in instructional activities which supervising teachers considered important for professional training.

Student teachers' classroom responsibilities were closely coordinated with activities and tasks in the reading-language course. By observing pre-service teachers in the classroom instructional setting, the DELTA staff instructor became familiar with their successes and difficulties and adjusted the reading-language course content accordingly.

The greatest limitation encountered in the reading-language course was insufficient time to deal with skills and content needed by future classroom teachers; this limitation, however, also existed when the course was taught at the University. Student teachers reacted very positively to the DELTA pre-service course, requesting that the thirty class hours be extended by ten hours to cover specific topics in depth. Special arrangements with other University instructors facilitated meeting this request.

An additional value resulted from the on-site location of the reading-language methods course: by coordinating course content with the DELTA strands, master teachers not only supported the course content but also expended extra effort to help student teachers understand the nature of DELTA strand activities which supervising teachers were developing. This effort benefited both student teachers and master teachers who often discovered their explanations required careful rethinking of the rationale for the strand activity development.

In Conclusion

The basic purpose of Project DELTA was to design, implement, and evaluate an in-service professional development model to enhance literacy teaching abilities, thereby effecting substantial impact on children's reading-language achievement. Formative data conclusions offer support that teacher behavioral change did indeed occur, as reflected in achievement growth by children in kindergarten, grade one, grade two, and grade three. Many of these reading-language gains were not only significant statistically but significant from a practical, applied standpoint as well. In addition, summative data conclusions provided insight into the process and content of model development.

The original design of Project DELTA was established for a two-year period; unfortunately, however, the U. S. Office of Education budget crisis reduced the funding level to one year. The second year design for transferring the model to six additional elementary schools would have produced substantial impact on teacher performance and child reading-language development for an extended number of teachers and children. Hopefully, reorganization of the U.S. Office of Education and the National Institute of Education will provide commitment to projects encompassing two or three successive school years in order to utilize a project's multiplier effect.

Despite lack of second-year funding, the principal investigator has devoted considerable attention to this multiplier effect, currently being realized to some degree through the five doctoral students who served as strand leaders during Project DELTA. Their present roles range from[1] a lecturer at the University of California at Davis and an assistant Professor of education at Virginia Polytechnic Institute--both involved with in-service and pre-service teacher training--to reading specialists in the Mt. Diablo Unified School District and the Berkeley Unified School District to a reading-language curriculum director in the Pittsburg Unified School District. Each individual has indicated that the Project DELTA experience proved extremely valuable relative to both process and content implementation. These individuals are also using instruments and products developed in the model in pre-service and in-service professional development of teachers. Further impact is occurring at the University of California in Berkeley in reading-language pre-service courses which are utilizing observational instruments, strand content products, and DELTA slides. In addition, the multiplier effect has been realized through numerous visits to Washington Elementary School by California school district personnel and by public school and university project staff members from Portland (Oregon), Columbus (Ohio), Philadelphia (Pennsylvania), and Durham (North Carolina). During 1971 the principal investigator and project staff members made three major presentations to large teacher groups at state and national conventions in San Francisco, Los Angeles, and Las Vegas; another presentation will occur in May of 1972 at the Detroit International Reading Association Convention.

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[1] See Acknowledgments for additional details.

The twenty months of activity involved in designing, implementing, and evaluating Project DELTA have represented a rich learning experience for the principal investigator and the research analyst. Perhaps better than anyone else, they realize that the research design, the data collected, and the resulting conclusions only partially fulfill the central purpose. As with most research and development projects, this investigation raises numerous questions requiring future consideration in both controlled laboratory settings and field research settings. The project's value lies mainly in providing significant formative and summative data which explore relationships among teacher performance, pupil characteristics, and reading-language achievement in realistic classroom situations.

In order to formulate innovative classroom instruction to meet the needs of inner-city children, investigators must continue conducting research and development programs such as Project DELTA. This approach, combined with more formal laboratory experimentation, is essential for researchers and classroom teachers to obtain further understanding of the relationships between teacher performance and the reading-language achievement of the inner-city child.

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Appendix A

ORAL AND WRITTEN LANGUAGE OBSERVATIONAL SCALES

Teacher's Copy

Completing the Oral and Written Language Inventories

In considering the transfer potential of the DELTA model, staff members have developed two observational scales: an Oral Language Inventory and a Written Language Inventory.

Each scale contains six components. In each part you should first determine if the child is strong, average, or weak on a specific aspect of oral or written language; then you should weigh your evaluations and rate this section of the inventory on the 1-to-5 scale at the top. Remembering that one (1) is low and five (5) is high, please circle the appropriate number after weighing your evaluations of strong, average, or weak.

Appendix A-1

ORAL LANGUAGE INVENTORY

TEACHER'S COPY OF ORAL LANGUAGE INVENTORY

I. QUALITY OF THOUGHT [1] [2] [3] [4] [5] Oral

When the child speaks, what quality of ideas does he express? Is his topic original or stereotypic? Is his expression imaginative or dull? Does the child's language reflect a sense of humor (if appropriate) or is his expression bland and factual? Does the child emotionally involve himself with the characters he is describing or is he detached? Does his expression reflect a curiosity about the topic or is the information stated without interest? Does the child use relevant information or does he include much unnecessary or irrelevant material?

	Strong	Average	Weak		Strong	Average	Weak
Originality				Involvement			
Imagination				Curiosity			
Humor				Relevant Info.			

II. ORGANIZATION OF EXPRESSION [1] [2] [3] [4] [5] Oral

When the child speaks, does he express himself in a logical, organized manner? Does he properly introduce the topic or does he just begin at any random place? Are his ideas developed and expanded or does the child jump from the beginning to the end of his story without development? Is his communication satisfactorily concluded or does it abruptly end? Does the child organize his events in a logical, sequential order or are the happenings mixed and disordered? Are the main ideas and minor details related together into a whole or are they disconnected? Does the child unite the parts of his story with transitional phrases or does he have the major parts in isolation of each other? Does the child show sensitivity to his audience (a listener) by controlling his language so the audience understands what he is saying or is he usually unconcerned or unaware?

	Strong	Average	Weak		Strong	Average	Weak
Introduction				Relationships			
Development				Transitions			
Conclusion				Audience			
Sequencing							

III. QUALITY AND CONTROL OF LANGUAGE [1] [2] [3] [4] [5] Oral

A. Vocabulary

When the child speaks does he exhibit a large and varied range of vocabulary or is his stock of words limited and narrow? Does the child use his vocabulary with effective precision--putting the right word in the right place--or does the child use common, over-used words that only approximate his meaning? Does the child's language reveal a knowledge of concepts or does he appear to have a lack of experiences and concepts?

	Strong	Average	Weak
Range of vocabulary			
Effective precision			
Knowledge of concepts			

B. Sentence Development

Does the child use a variety of sentence types (declarative, interrogative, etc.) when he speaks, or does he use mainly one type? Does the child use a range of the basic sentence patterns (noun, verb: Randolph ate; noun, verb, object: Tom hit the boy, etc.) or does he restrict himself to a few patterns? Does the child arrange the words within a sentence in many interesting ways (one day the dog found a bone; the dog found a bone one day; finding a bone one day the dog..., etc.) or does he limit his expression to the same ordering of words?

	Strong	Average	Weak
Variety of sentence types			
Range of sentence patterns			
Diversification of inner sentence style			

IV. FLUENCY OF LANGUAGE [1] [2] [3] [4] [5] Oral

In regard to the quantity of language, does the child fail to express his thoughts by saying an insufficient or limited amount? Or does the child possess a flexibility of quantity--adjusting the amount of language to be appropriate with his purpose? Or is the child verbose, over-talking most of the time?

	Strong	Average	Weak
Quantity			

V. PERSONAL RESPONSE TO LANGUAGE [1] [2] [3] [4] [5] Oral

Does the child find pleasure and enjoy speaking, or does the child dislike speaking?

VI. TECHNICAL SKILLS IN ORAL EXPRESSION

A. Articulation .... [1] [2] [3] [4] [5]

Does the child speak distinctly, or is he difficult to understand?

B. Volume .... [1] [2] [3] [4] [5]

Is the child's volume appropriate for his purpose or does he speak too softly or too loudly?

C. Mazes ....(many) [1] [2] [2] [4] [5] (few)

Is the child's speech fluent or is it filled with mazes? ("The dog w-w-wanted to get wanted to wanted to see his master." The underlined part may be called a maze, a confusing tangle of words.)

D. Inflection .... [1] [2] [3] [4] [5]

Does the child use inflection in speech to further the meaning and quality of his expression or does he fail to adjust tone, pauses, pitch and stress?

E. Style Switch .... [1] [2] [3] [4] [5]

Can the child change or switch from one style of speaking to another (i.e., from formal language to informal to colloquial? or from nonstandard dialect to standard English?)?

Name of Child ______________________________ Date ____________________

Grade ______ Teacher ____________________

CLASSROOM ORAL LANGUAGE INVENTORY: CHILD'S RECORD

I. QUALITY OF THOUGHT

General Score: [1] [2] [3] [4] [5]
Low............High

Specific Skills	Strong	Average	Weak
Originality			
Imagination			
Humor			
Involvement			
Curiosity			
Relevant Info.			

Comments:

II. ORGANIZATION OF EXPRESSION

General Score: [1] [2] [3] [4] [5]
Low............High

Specific Skills	Strong	Average	Weak
Introduction			
Development			
Conclusion			
Sequencing			
Relationship			
Transitions			
Audience			

Comments:

III. QUALITY AND CONTROL OF LANGUAGE

General Score: [1] [2] [3] [4] [5]
Low............High

Specific Skills	Strong	Average	Weak
Vocabulary: Range			
Effective use			
Knowledge of concepts			
Sentence Development: Variety of sentence types			
Range of sentence patterns			
Diversification of inner sentence style			

Comments:

IV. FLUENCY OF LANGUAGE

General Score: [1] [2] [3] [4] [5]
Low............High

Specific Skill	Strong	Average	Weak
Quantity			

Comments:

V. PERSONAL RESPONSE TO LANGUAGE

[1] [2] [3] [4] [5]
Low............High

Comments:

VI. TECHNICAL SKILLS IN ORAL EXPRESSION

Low............High
A. Articulation... [1] [2] [3] [4] [5]
B. Volume......... [1] [2] [3] [4] [5]
C. Mazes.......... [1] [2] [3] [4] [5]
D. Inflection..... [1] [2] [3] [4] [5]
E. Style Switch... [1] [2] [3] [4] [5]

Comments:

Appendix A-2

WRITTEN LANGUAGE INVENTORY

TEACHER'S COPY OF WRITTEN LANGUAGE INVENTORY

I. QUALITY OF THOUGHT [1] [2] [3] [4] [5] Written

When the child writes, what quality of ideas does he express? Is his topic original or stereotypic? Is his expression imaginative or dull? Does the child's language reflect a sense of humor (if appropriate) or is his expression bland and factual? Does the child emotionally involve himself with the characters he is describing or is he detached? Does his expression reflect a curiosity about the topic or is the information stated without interest? Does the child use relevant information or does he include much unnecessary or irrelevant material?

	Strong	Average	Weak		Strong	Average	Weak
Originality				Involvement			
Imagination				Curiosity			
Humor				Relevant Info.			

II. ORGANIZATION OF EXPRESSION [1] [2] [3] [4] [5] Written

When the child writes does he express himself in a logical, organized manner? Does he properly introduce the topic or does he just begin at any random place? Are his ideas developed and expanded or does the child jump from the beginning to the end of his story without developm[illegible] Is his communication satisfactorily concluded or does it abruptly en[illegible] Does the child organize his events in a logical, sequential order or are the happenings mixed and disordered? Are the main ideas and minor details related together into a whole or are they disconnected? Does the child unite the parts of his story with transitional phrases or does he have the major parts in isolation of each other? Does the child show sensitivity to his audience (a reader) by controlling his language so the audience understands what he is saying or is he usually unconcerned or unaware?

	Strong	Average	Weak		Strong	Average	Weak
Introduction				Relationship			
Development				Transitions			
Conclusion				Audience			
Sequencing							

III. QUALITY AND CONTROL OF LANGUAGE [1] [2] [3] [4] [5]

A. Vocabulary

When the child writes does he exhibit a large and varied range of vocabulary or is his stock of words limited and narrow? Does the child use his vocabulary with effective precision--putting the right word in the right place--or does the child use common, over-used words that only approximate his meaning? Does the child's language reveal a knowledge of concepts or does he appear to have a lack of experiences and concepts?

	Strong	Average	Weak
Range of vocabulary			
Effective precision			
Knowledge of concepts			

B. Sentence Development

Does the child use a variety of sentence types (declarative, interrogative, etc.) when he writes, or does he use mainly one type? Does the child use a range of the basic sentence patterns (noun, verb: Randolph ate; noun, verb, object: Tom hit the boy, etc.) or does he restrict himself to a few patterns? Does the child arrange the words within a sentence in many interesting ways (one day the dog found a bone; the dog found a bone one day; finding a bone one day the dog..., etc.) or does he limit his expression to the same ordering of words?

	Strong	Average	Weak
Variety of sentence types			
Range of sentence patterns			
Diversification of inner sentence style			

IV. FLUENCY OF LANGUAGE [1] [2] [3] [4] [5] Written

In regard to the quantity of language, does the child fail to express his thoughts by writing an insufficient or limited amount? Or does the child possess a flexibility of quantity--adjusting the amount of language to be appropriate with his purpose? Or is the child verbose, over-writing most of the time?

	Strong	Average	Weak
Quantity			

V. PERSONAL RESPONSE TO LANGUAGE [1] [2] [3] [4] [5] Written

Does the child find pleasure and enjoy writing, or does the child dislike writing?

VI. TECHNICAL SKILLS IN WRITTEN EXPRESSION

A. Spelling .... [1] [2] [3] [4] [5]

Does the child spell words in the traditional (correct) way? ___

Does the child spell words "phonetically" but not the same as traditional orthography? ___

Does the child spell words not as they sound and not in the traditional manner? ___

B. Punctuation .... [1] [2] [3] [4] [5]

Does the child know and use accepted punctuation in his writing, or is his writing mainly without capitalization and punctuation?

C. Usage .... [1] [2] [3] [4] [5]

Does the child employ the Standard English usage or does he vary from this (i.e., he don't; I ain't got no money; them girls are hitting me; I seen him take the pencil)?

D. Style Switch .... [1] [2] [3] [4] [5]

Can the child change or switch from one style of writing to another (i.e., from formal to informal to colloquial? or from nonstandard dialect to standard English?)?

E. Handwriting .... [1] [2] [3] [4] [5]

Is the child's handwriting legible or illegible?

Name of Child ______________________________ Date ____________________

Grade _______ Teacher ____________________

CLASSROOM WRITTEN LANGUAGE INVENTORY: CHILD'S RECORD

. QUALITY OF THOUGHT

General Score: [1] [2] [3] [4] [5]
Low............High

Specific Skills	Strong	Average	Weak
Originality			
Imagination			
Humor			
Involvement			
Curiosity			
Relevant Info.			

Comments:

II. ORGANIZATION OF EXPRESSION

General Score: [1] [2] [3] [4] [5]
Low............High

Specific Skills	Strong	Average	Weak
Introduction			
Development			
Conclusion			
Sequencing			
Relationship			
Transitions			
Audience			

Comments:

II . QUALITY AND CONTROL OF LANGUAGE

General Score: [1] [2] [3] [4] [5]
Low............High

Specific Skills	Strong	Average	Weak
Vocabulary: Range			
Effective use			
Knowledge of concepts			
Sentence Development: Variety of sentence types			
Range of sentence patterns			
Diversification of inner sentence style			

Comments:

IV. FLUENCY OF LANGUAGE

General Score: [1] [2] [3] [4] [5]
Low............High

Specific Skill	Strong	Average	Weak
Quantity			

Comments:

V. PERSONAL RESPONSE TO LANGUAGE

[1] [2] [3] [4] [5]
Low............High

Comments:

VI. TECHNICAL SKILLS IN WRITTEN EXPRESSION

Low............High

A. Spelling...... [1] [2] [3] [4] [5]
B. Punctuation... [1] [2] [3] [4] [5]
C. Usage......... [1] [2] [3] [4] [5]
D. Style Switch.. [1] [2] [3] [4] [5]
E. Handwriting... [1] [2] [3] [4] [5]

Comments:

Appendix B

THE CONTRAST-PERCEPTION STIMULUS*
THE REALITY-REVERSAL STIMULUS*
THE MULTIPLE-PICTURE STIMULUS*

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Robert B. Ruddell
Arthur C. Williams
Marilyn J. Williams

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PICTURE STIMULUS SITUATIONS FOR ORAL AND WRITTEN LANGUAGE

The Contrast-Perception Stimulus

In virtually all picture stimulus situations, the components of the picture are depicted in a way to meet the child's normal expectations. For example, all pictures are depicted in such a way that the child sees nothing unusual which would give him cause to use an analytical framework to explain the discrepancy between what he anticipates and what he observes.

The contrast-perception stimulus is a single-picture stimulus providing something other than the child's normal expectations: for example, a child teaching a classroom of adults or a picture of two couples dancing in which an exceptionally tall man is dancing with an extremely short woman and an exceptionally tall woman is dancing with an extremely short man. The child is asked to describe the picture and then to explain what he sees that he thinks is "funny or unusual." Thus the contrast-perception stimulus is designed to evaluate the child's ability at an early age (kindergarten through grade three) to observe closely and to analyze what he sees.

The Reality-Reversal Stimulus

The reality-reversal stimulus is a single-picture stimulus which is too far removed from the child's expectations to be classified as a contrast-perception stimulus: for example, an angry-looking fish peering into his fishbowl and watching a cat swimming happily underwater. The two stimulus situations are designed so that the child speaks (or writes) first about the contrast-perception stimulus and second about the reality-reversal stimulus. Thus, there is a learning process in which the child observes and analyzes an extension of reality as compared to a reversal of reality.

The Multiple-Picture Stimulus

The multiple-picture stimulus is a set of three pictures designed to lead the child from description, to narrative, and then to expository or interpretive language. The following is one example of a multiple-picture stimulus situation:

1. On the ledge of a cliff, a boy is holding onto a tree and removing one of his socks. Above the child, his dog is looking down, unable to assist the boy in climbing back up.

2. The boy is holding up a branch he has evidently broken from the tree, with the sock attached to the top of the branch so that the dog can snatch the sock between his teeth.

3. The dog is seen holding the sock in his mouth and running toward a woman (evidently the boy's mother) standing in front of a house.

In very simple terms, the multiple-picture stimulus (as described above) provides the child with a disaster-rescue situation in which the dog is the hero who will evidently lead the mother to the ledge where the child is still clinging precariously.

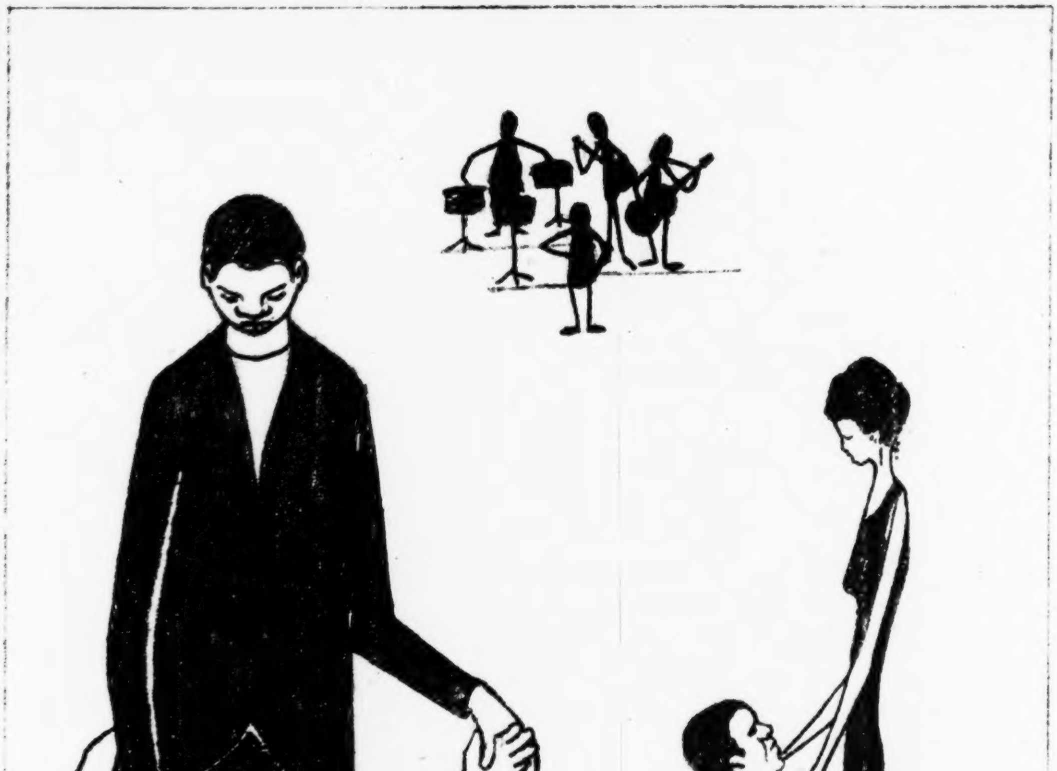
To any adult the precise nature of a given picture stimulus situation is self-evident; i.e., it is self-evident if the picture is contrast-perception, reality-reversal, or multiple-picture. It should be noted, however, that each picture or each set of pictures can be used for either oral or written language. In other words, the multiple-picture stimulus situation described above could be used for an oral language interview or for developing a written composition, depending upon the needs and desires of the classroom teacher. In addition, a group of children could jointly examine a given picture or set of pictures, orally, and the teacher could write a series of possible stories or explanations on the chalkboard. The conclusion of the lesson would be for the children to jointly decide which story or explanation was the best one to be used, thereby providing a learning experience for the entire class.

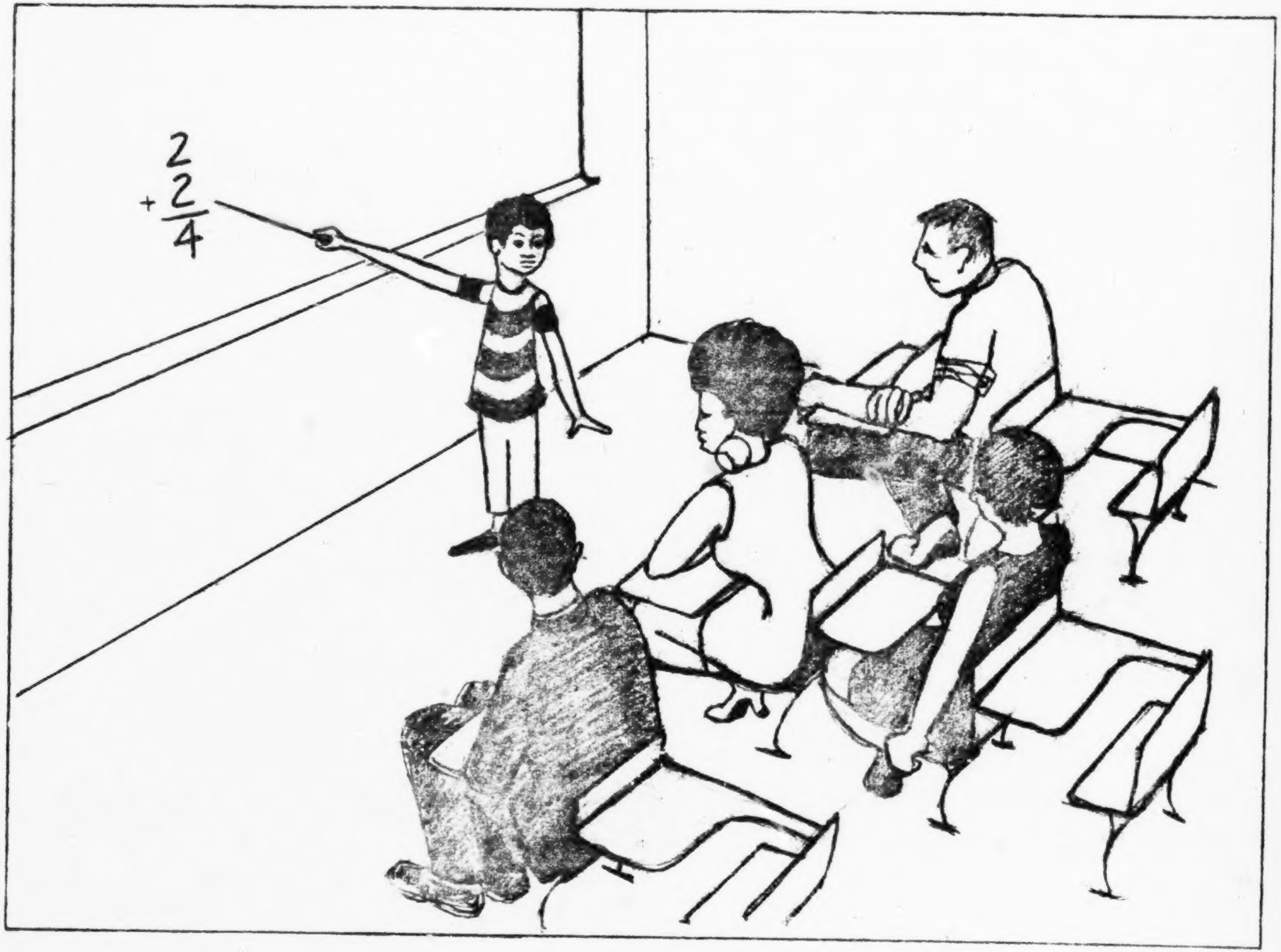
Appendix B-1

Oral Stimulus

Series A

2 contrast-perception
1 reality-reversal
2 sets, multiple-picture

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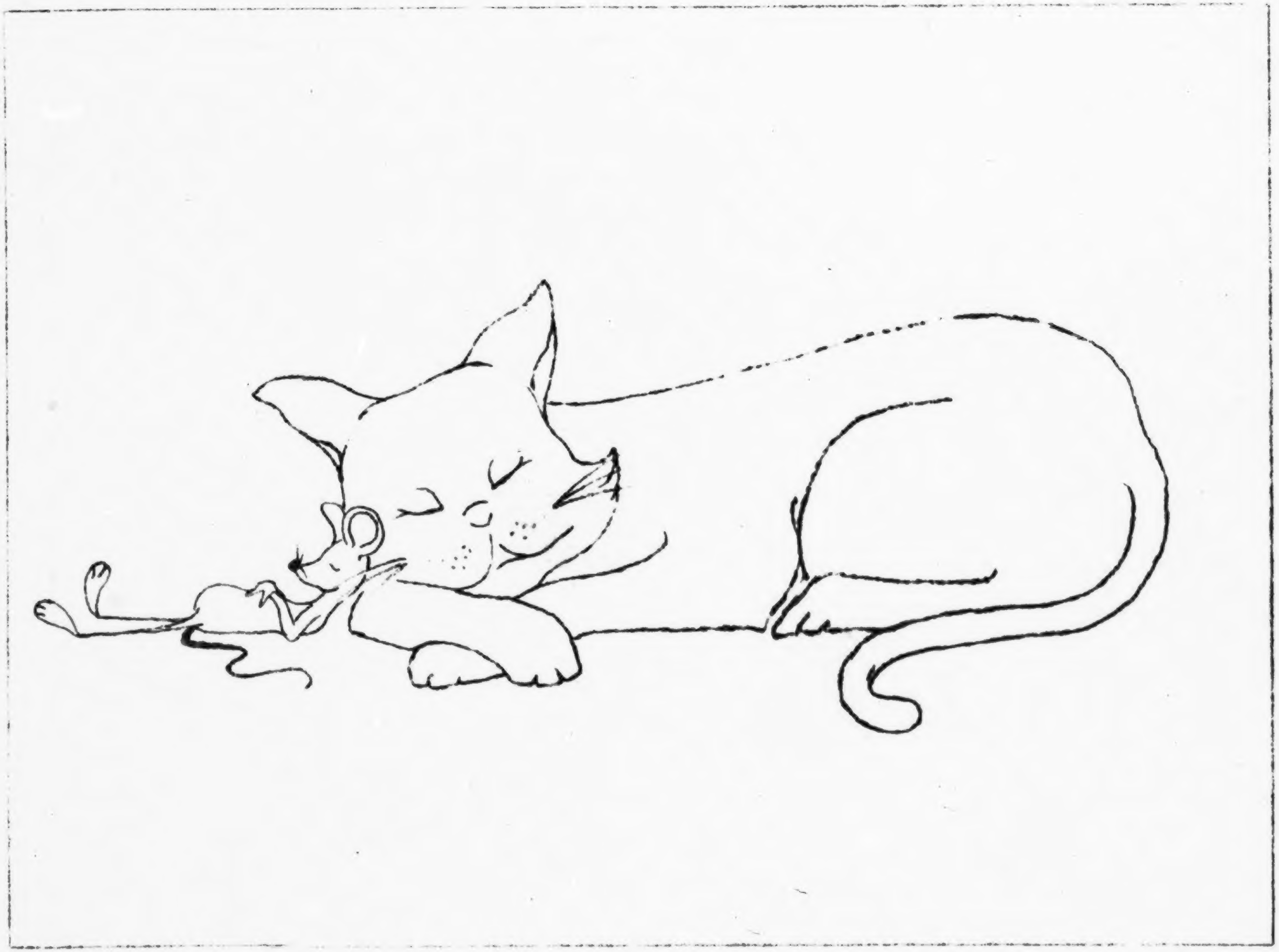
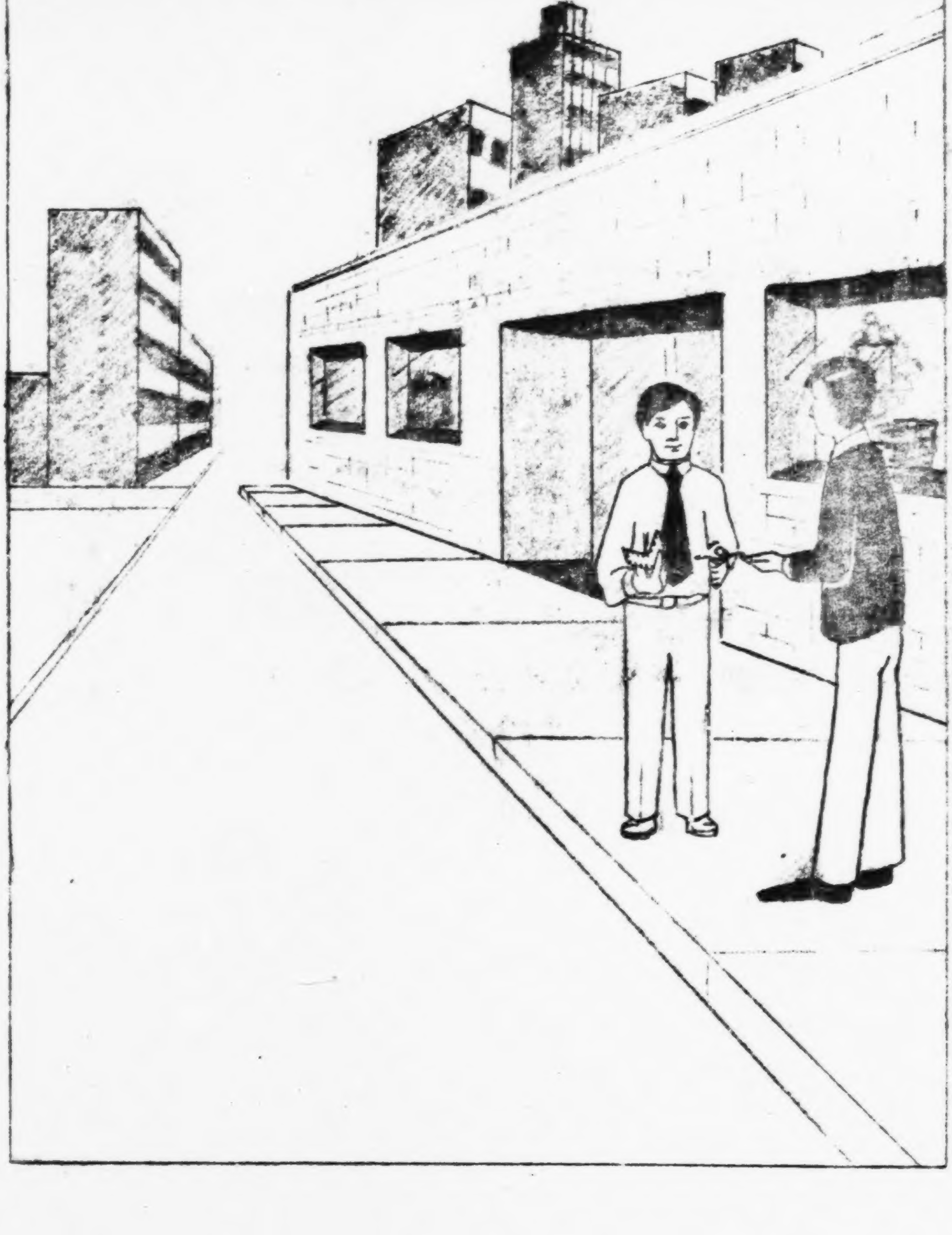
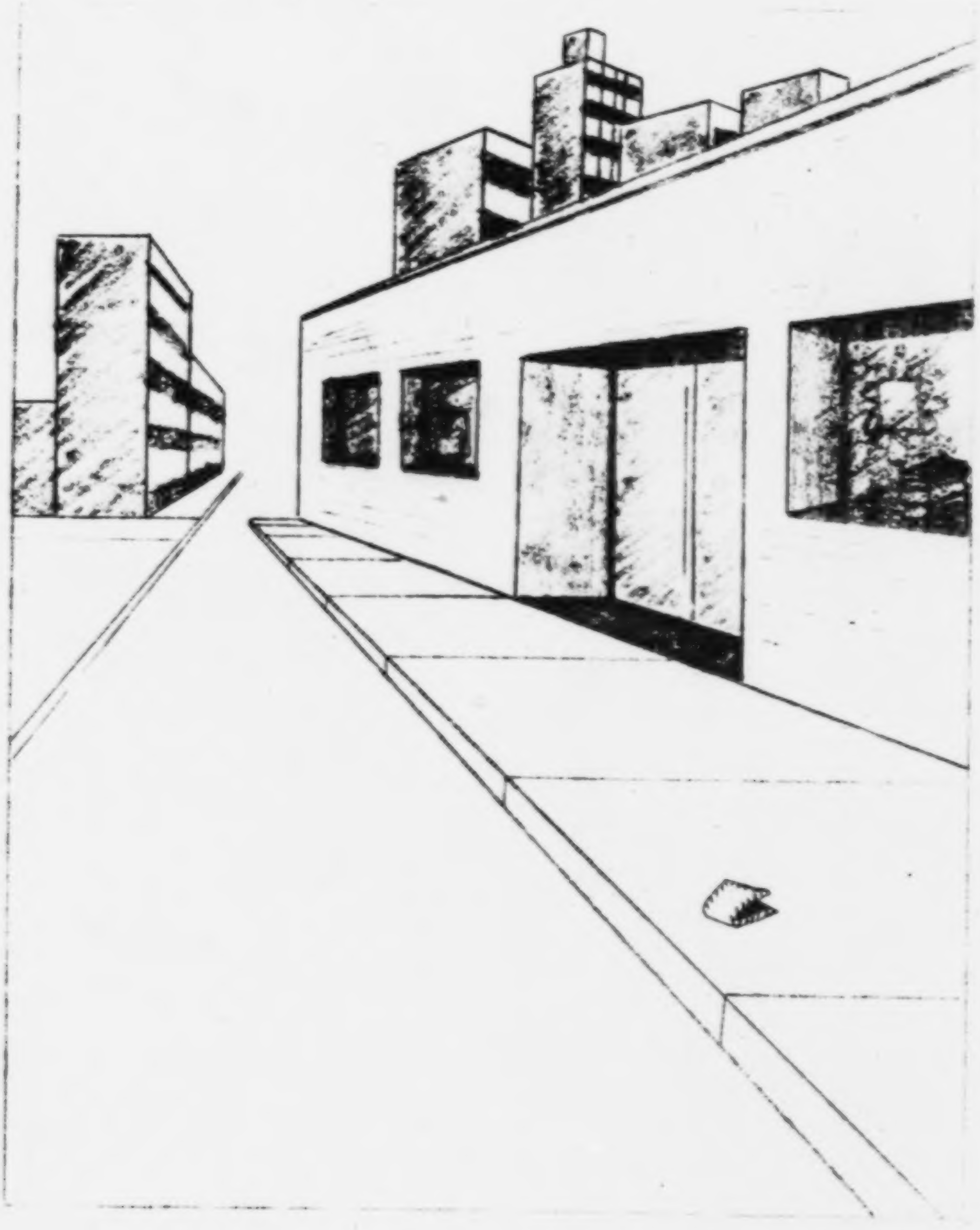
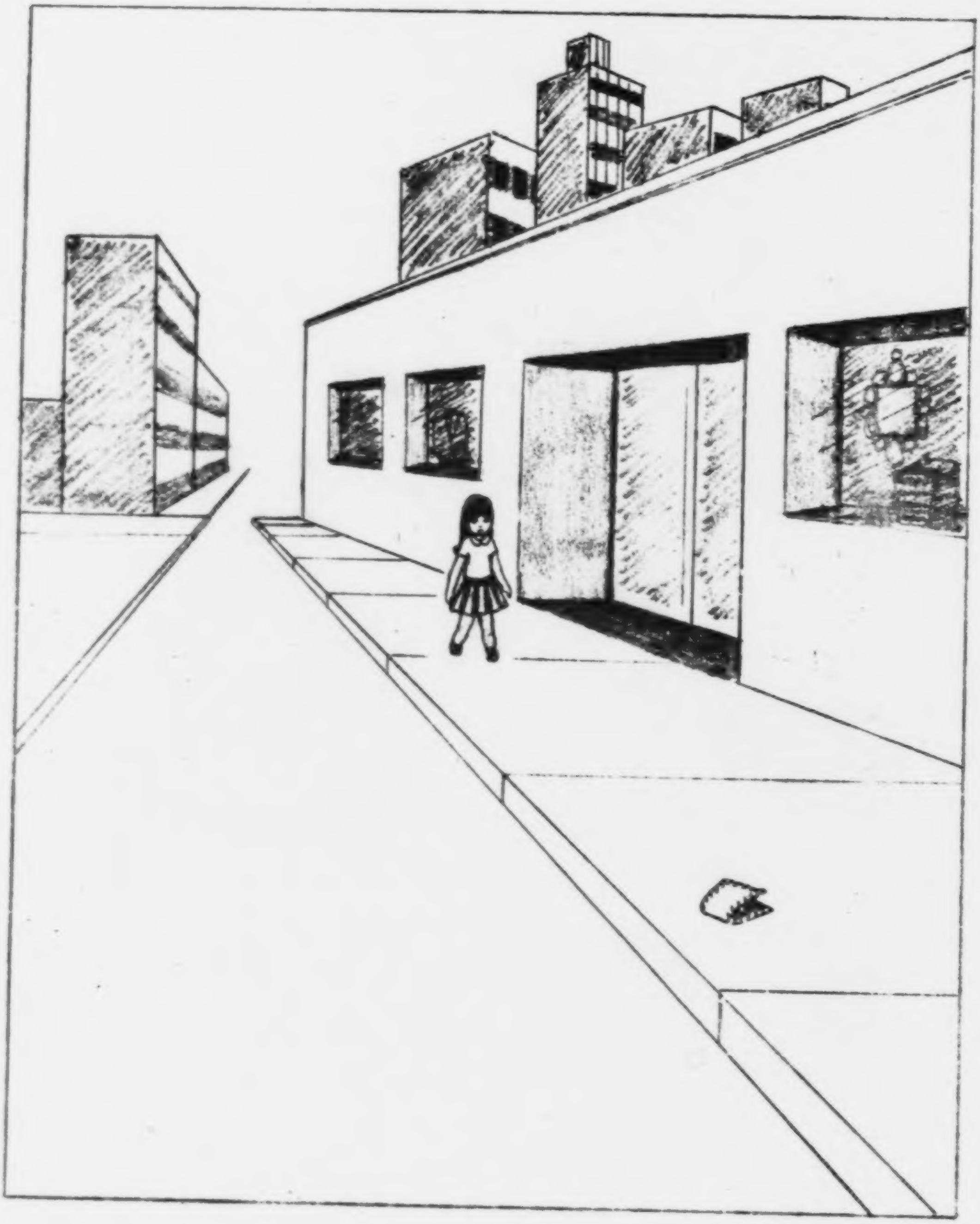
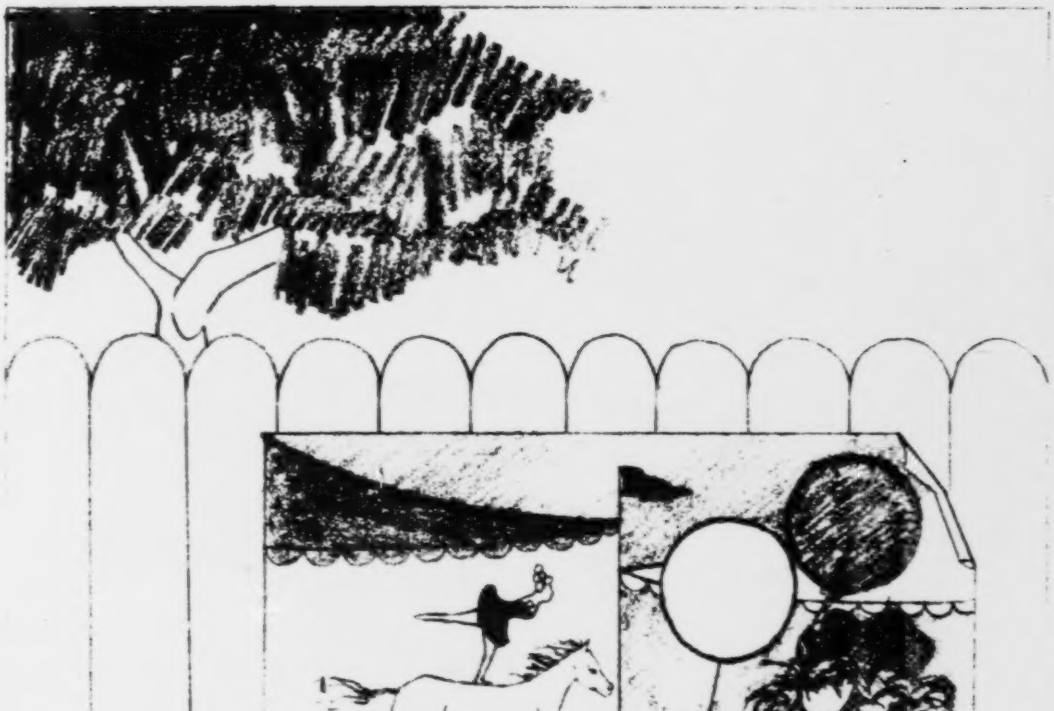
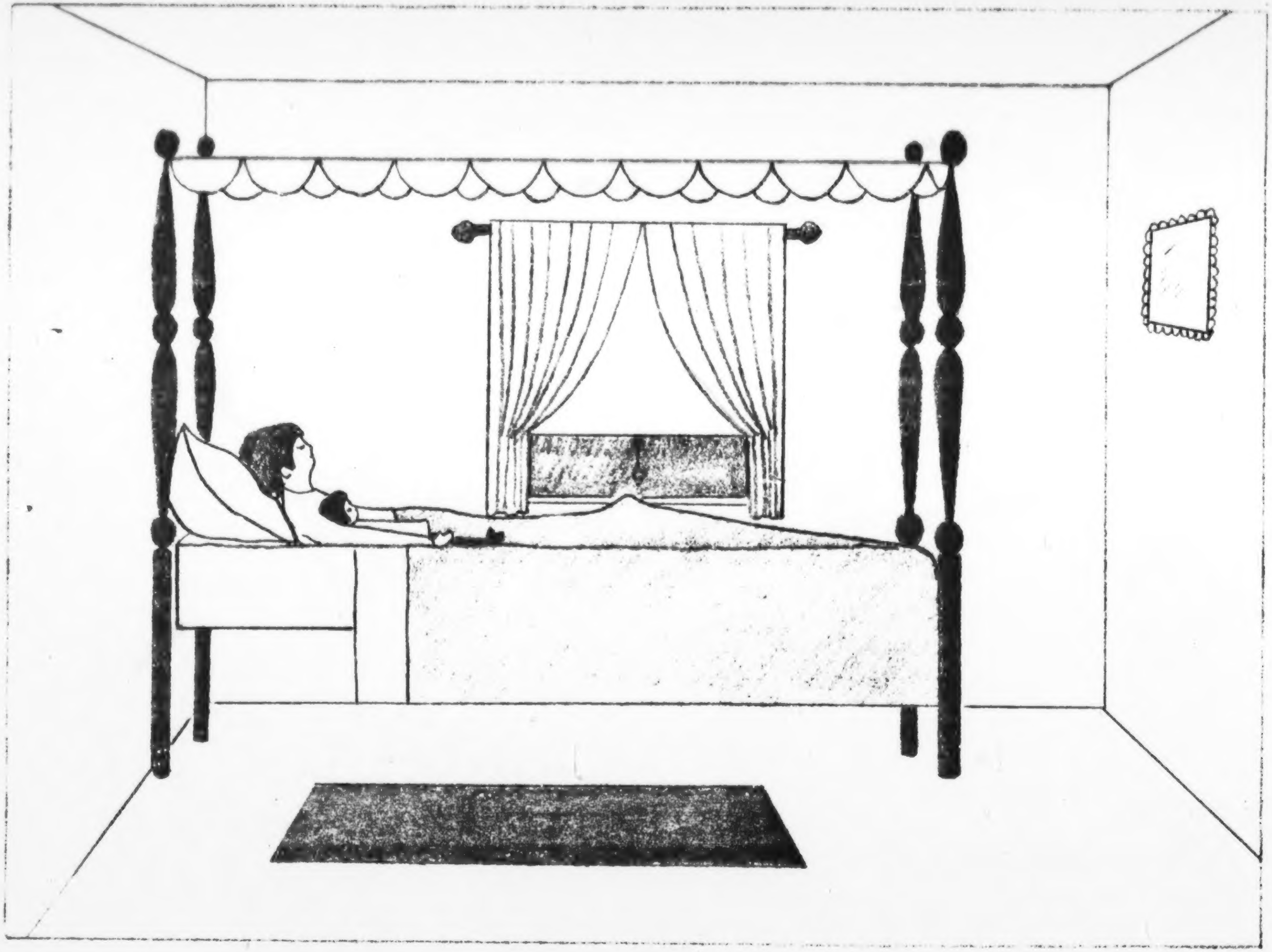


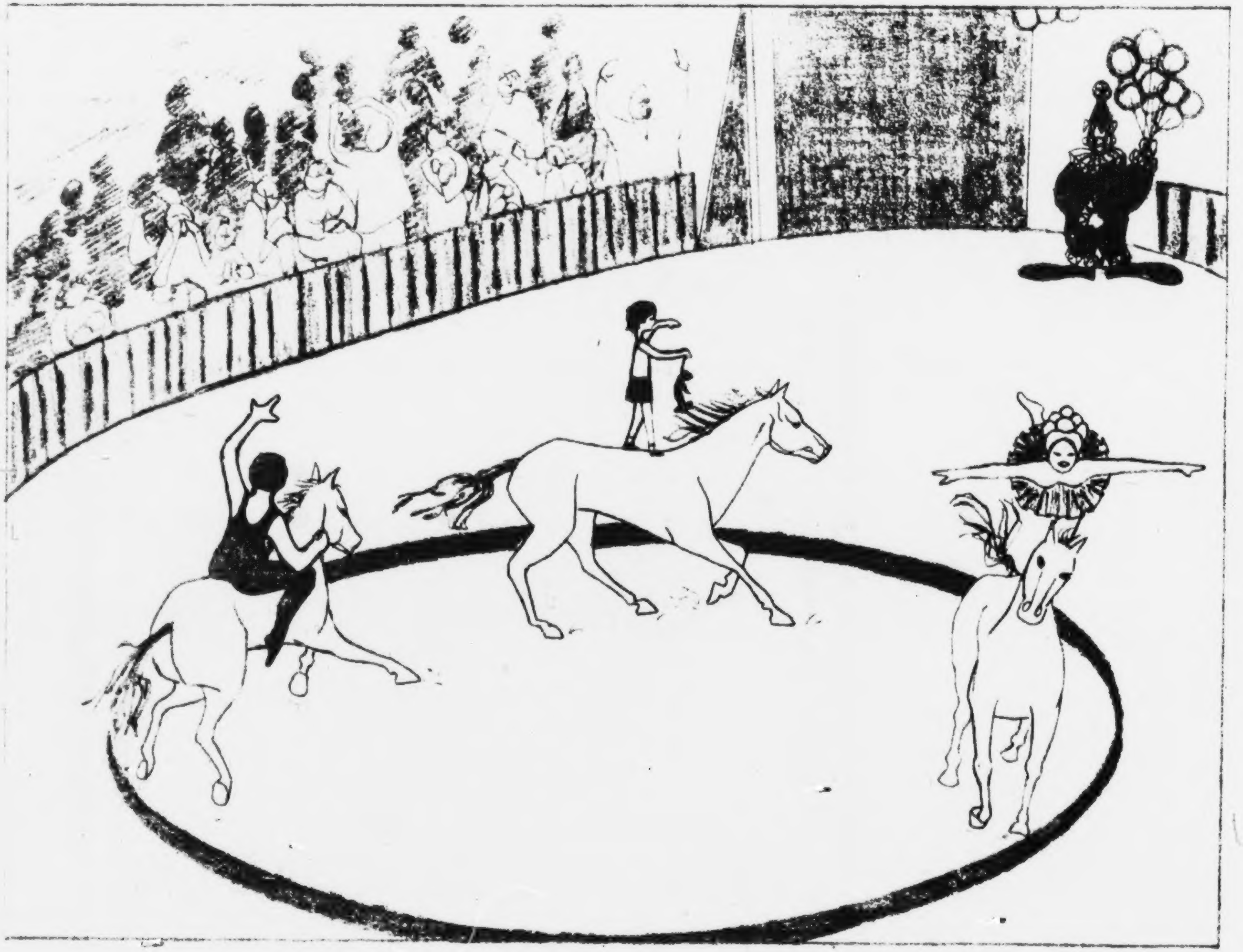










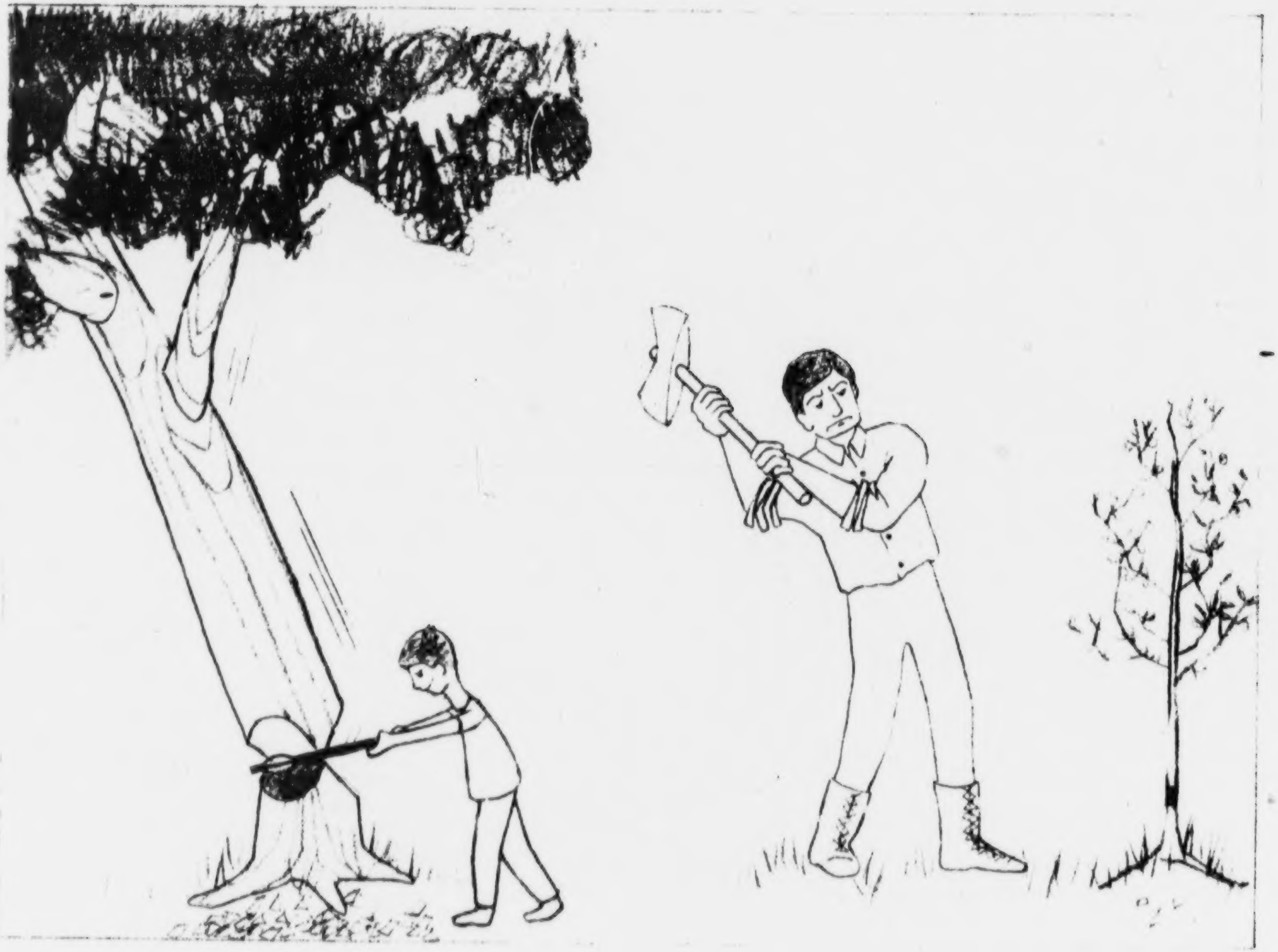


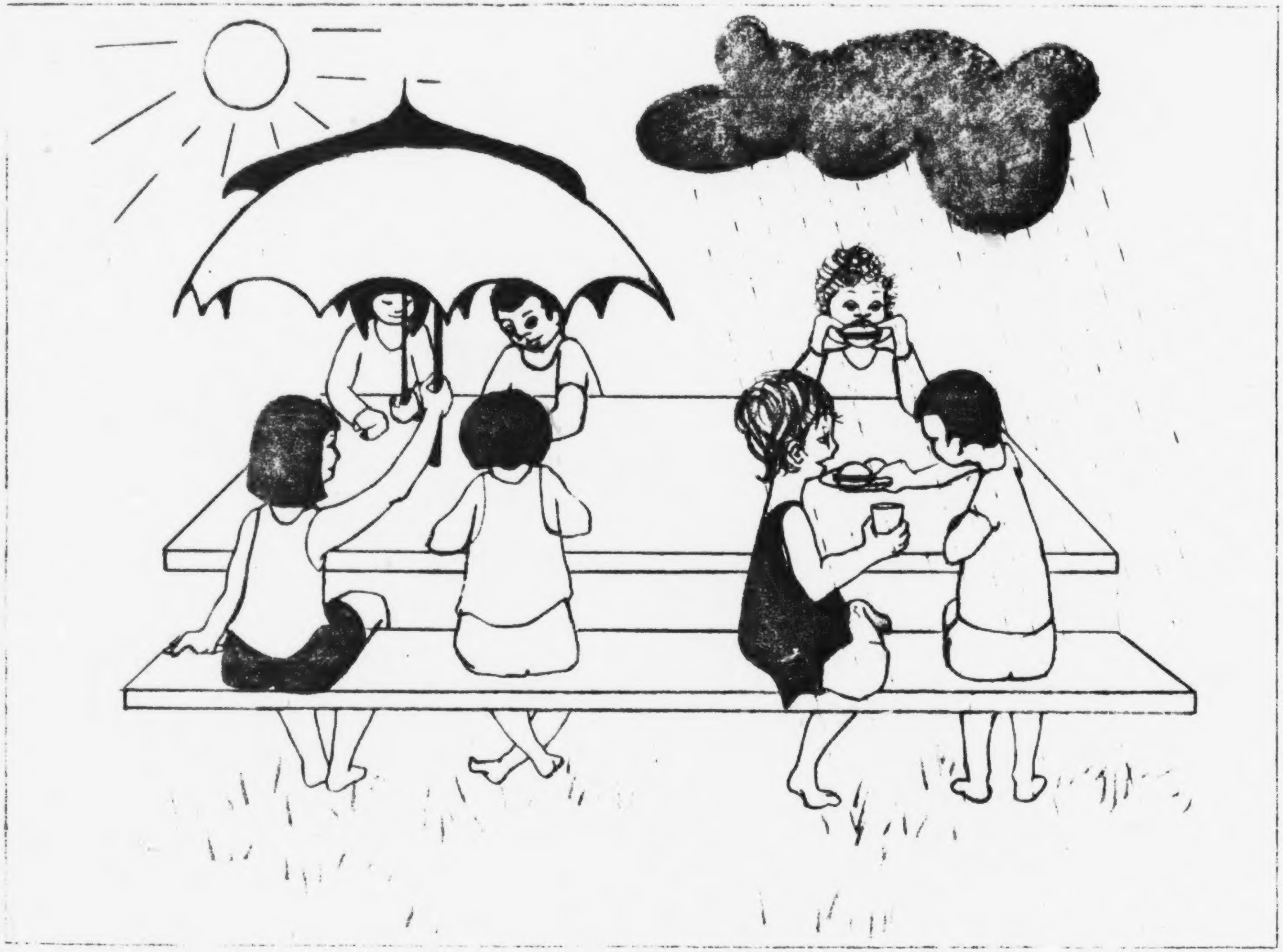
Appendix B-1

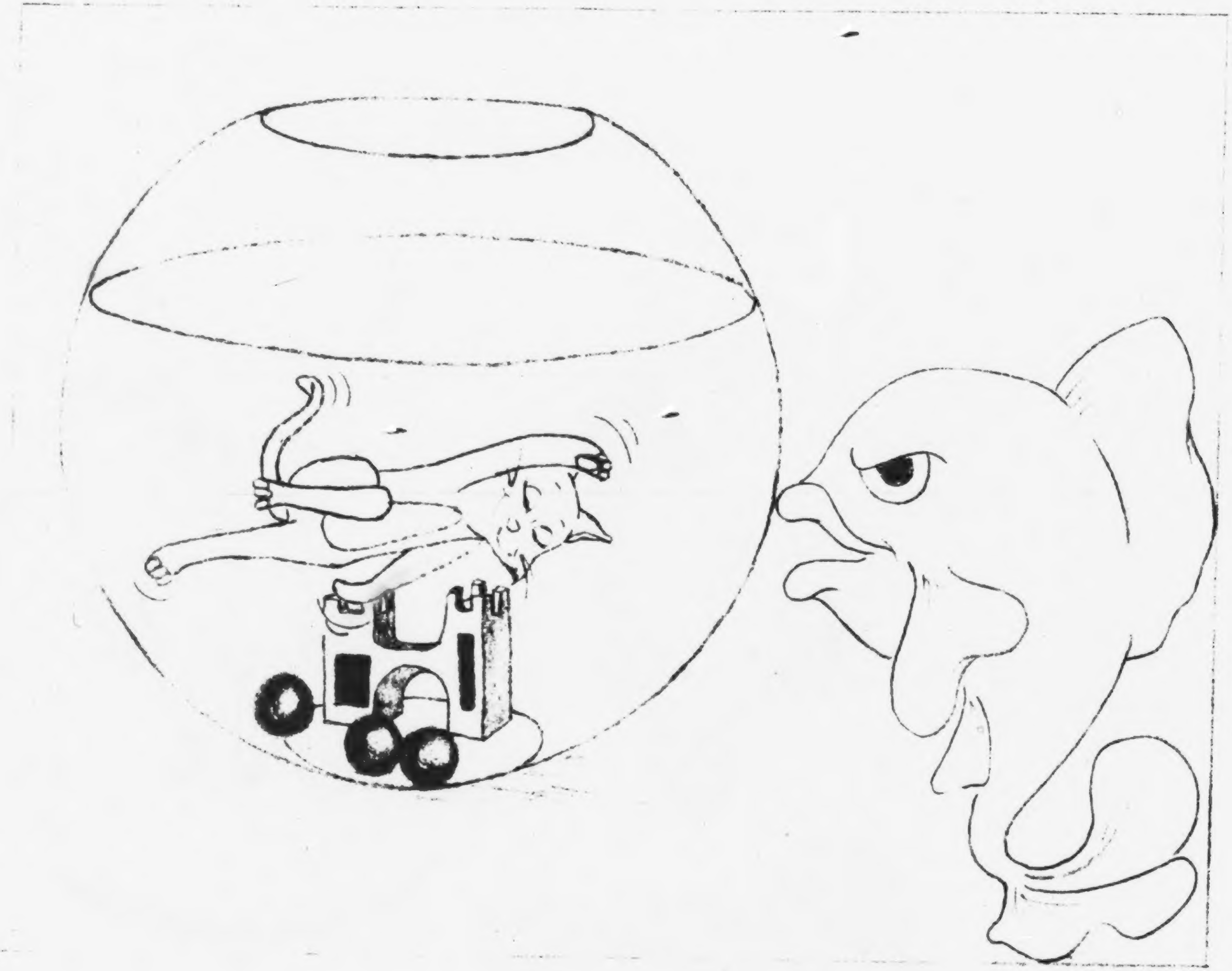
Oral Stimulus

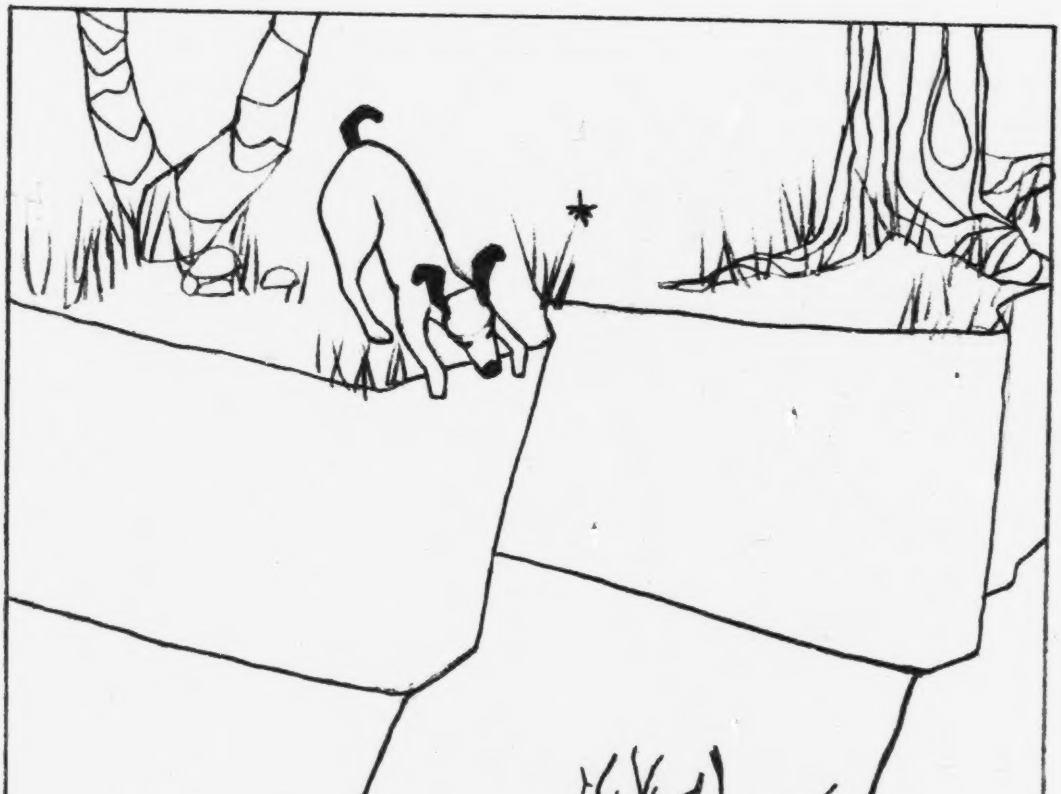
Series B

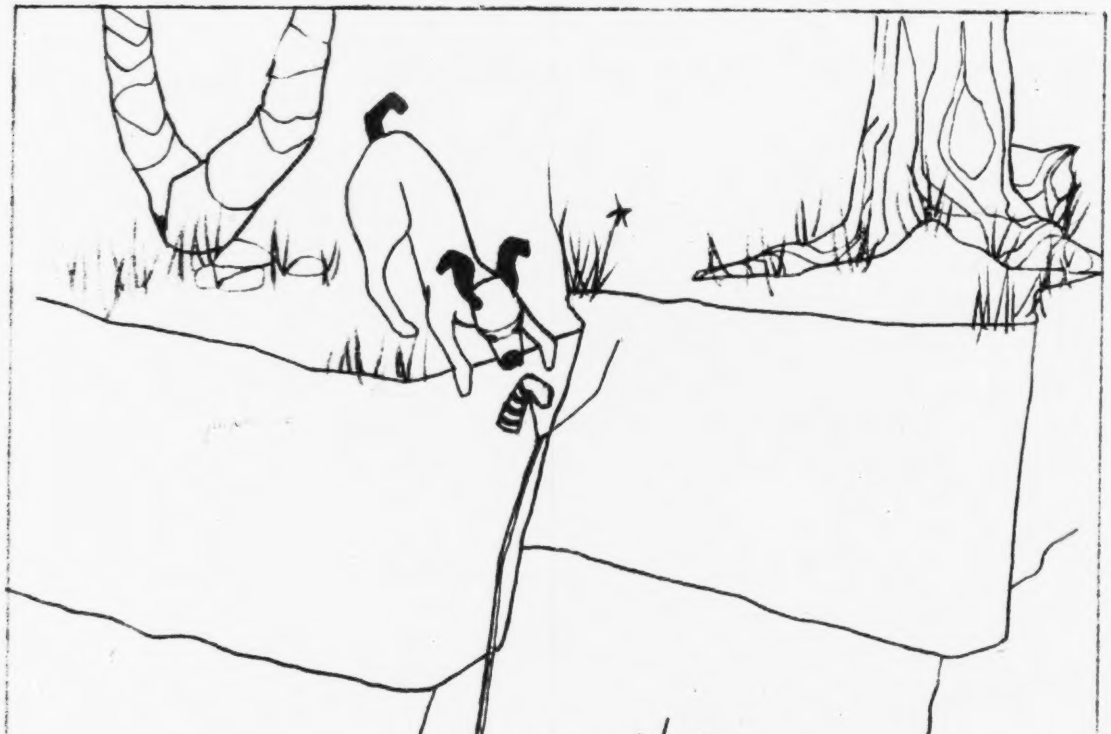
2 contrast-perception
1 reality=reversal
2 sets, multiple-picture

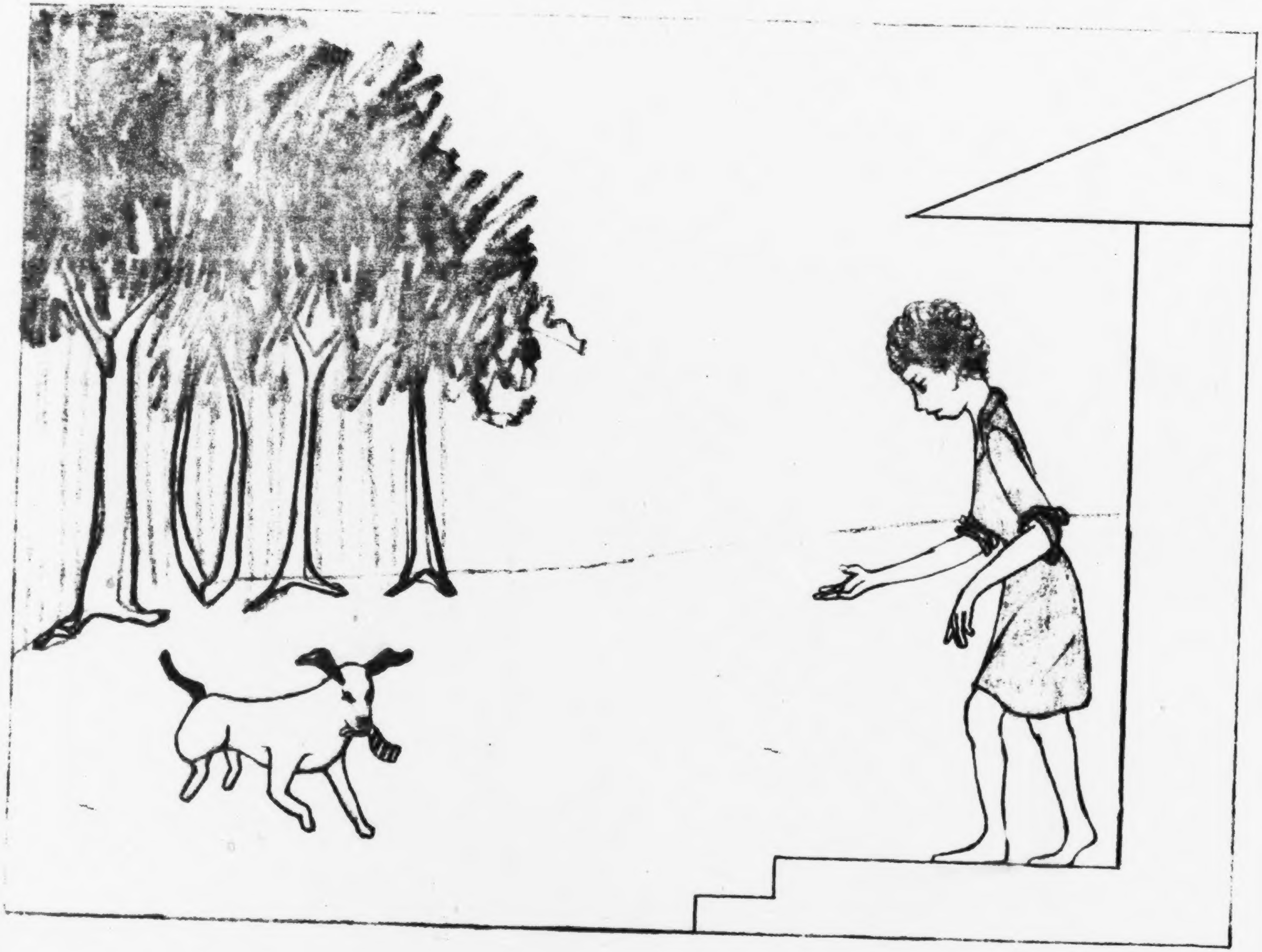


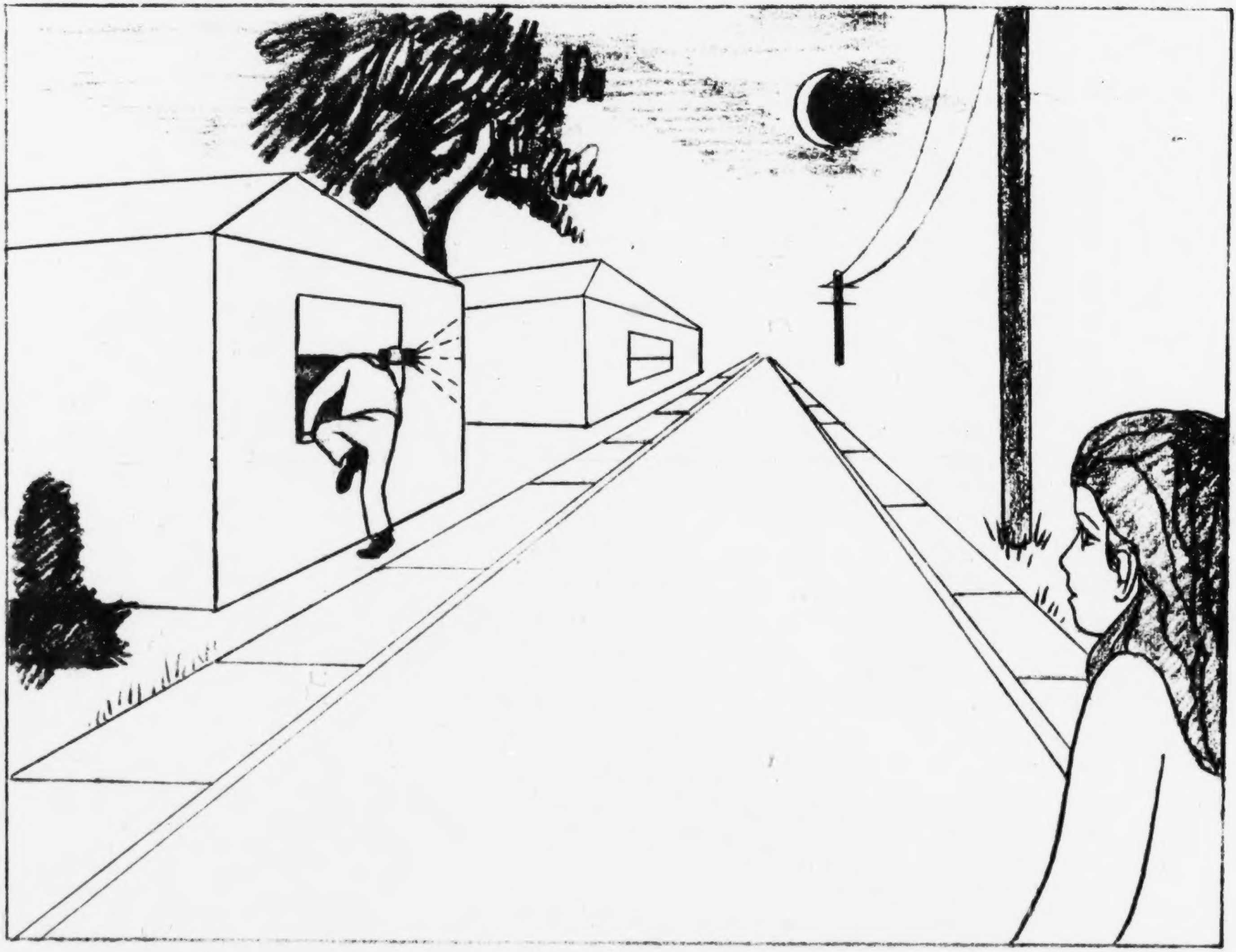


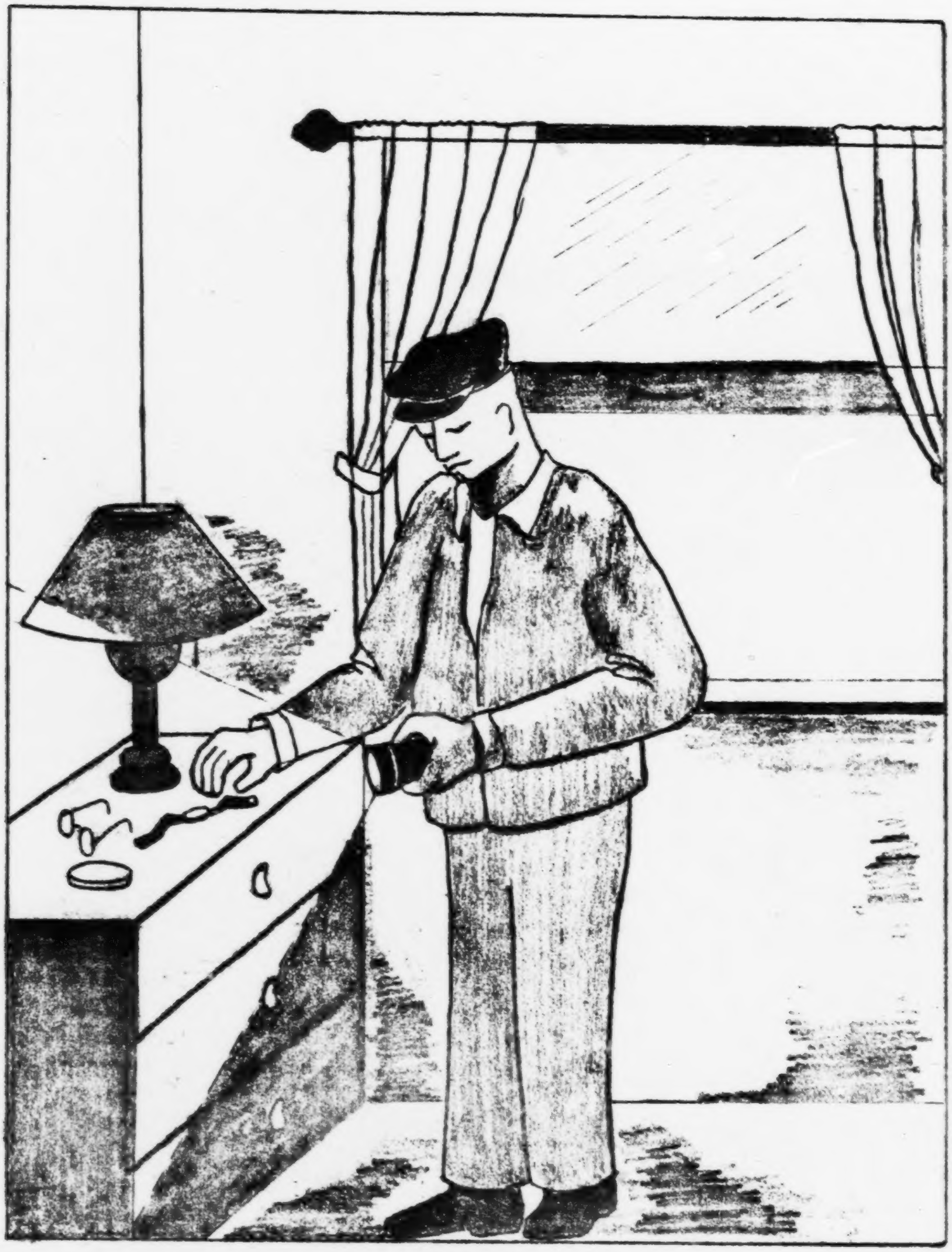


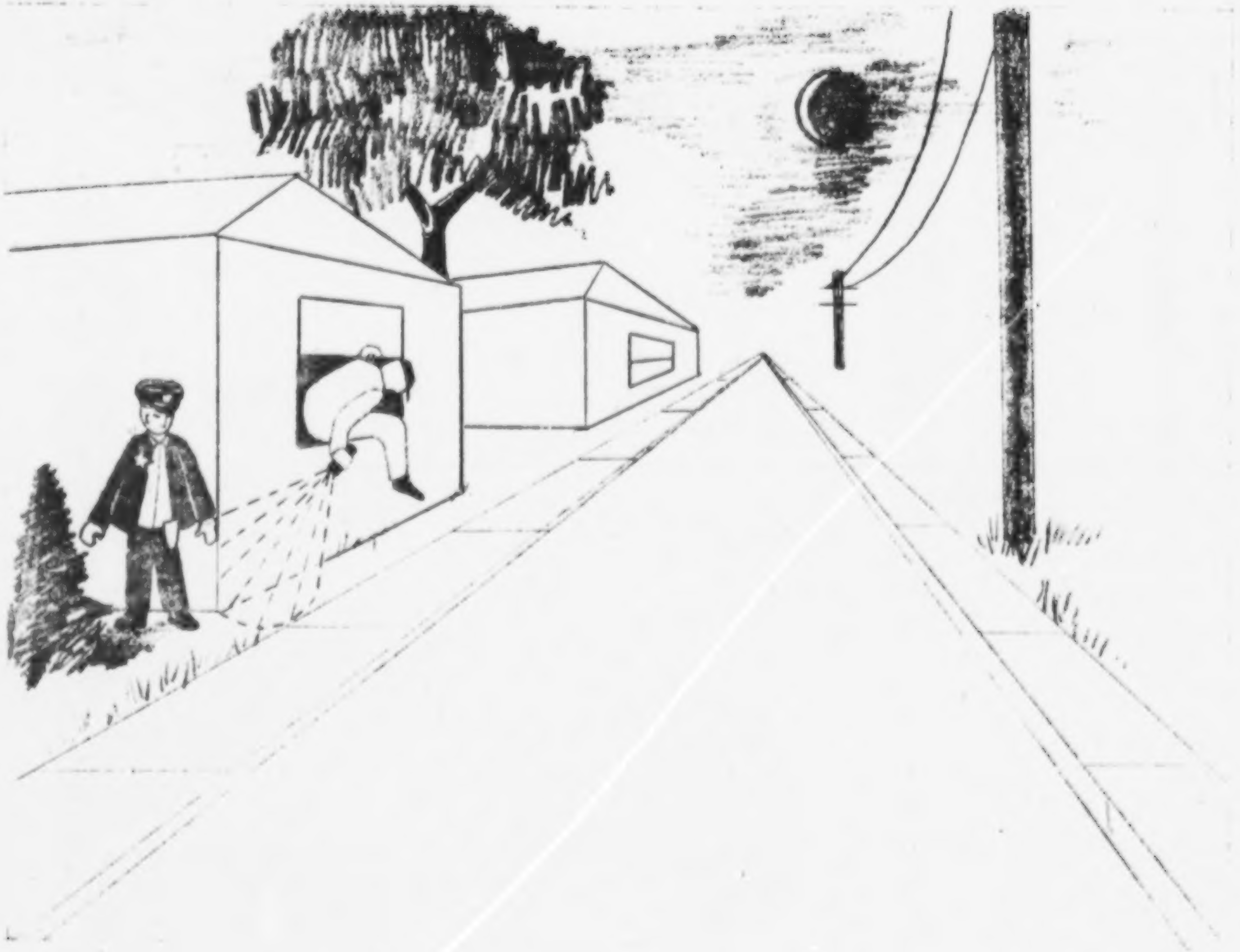










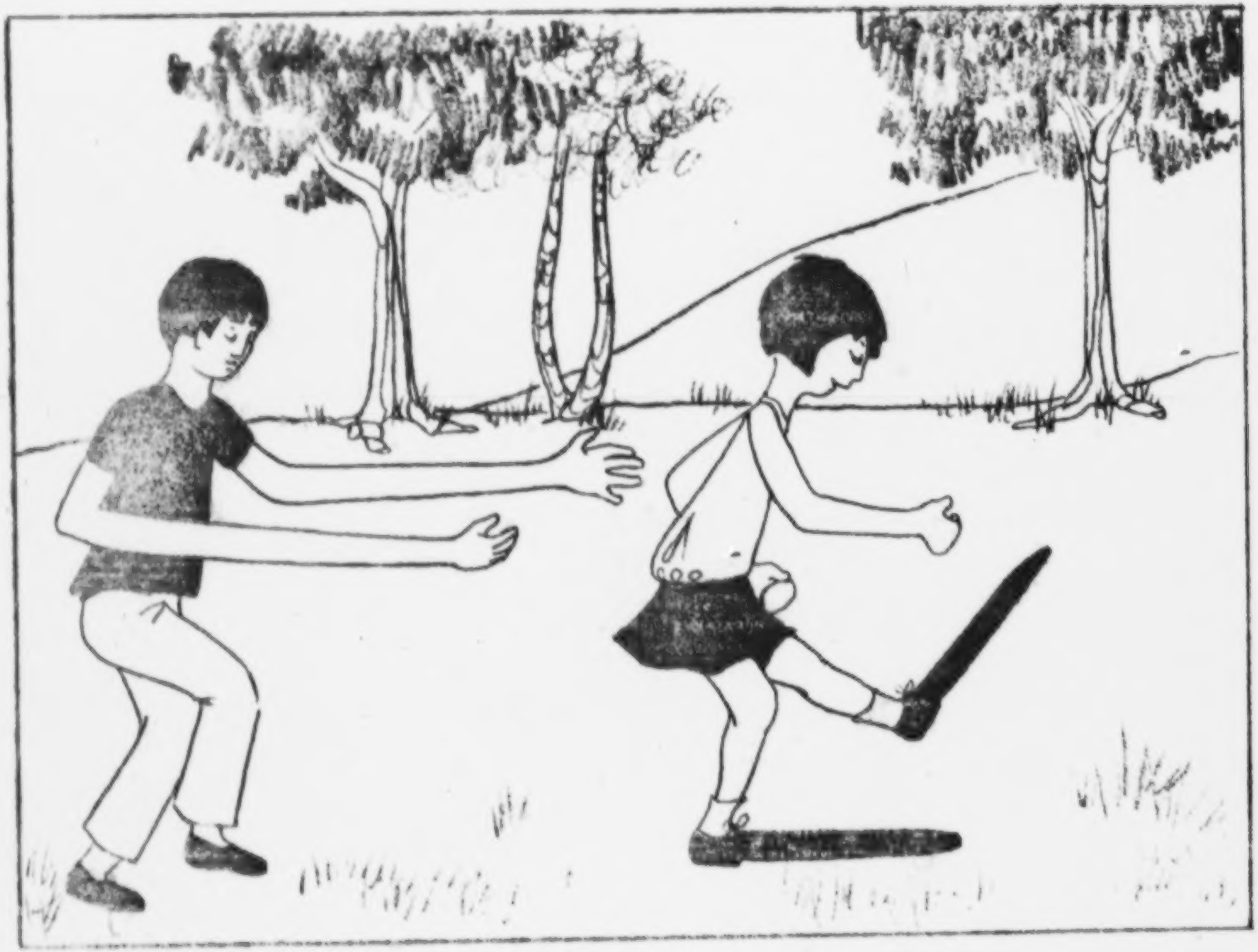


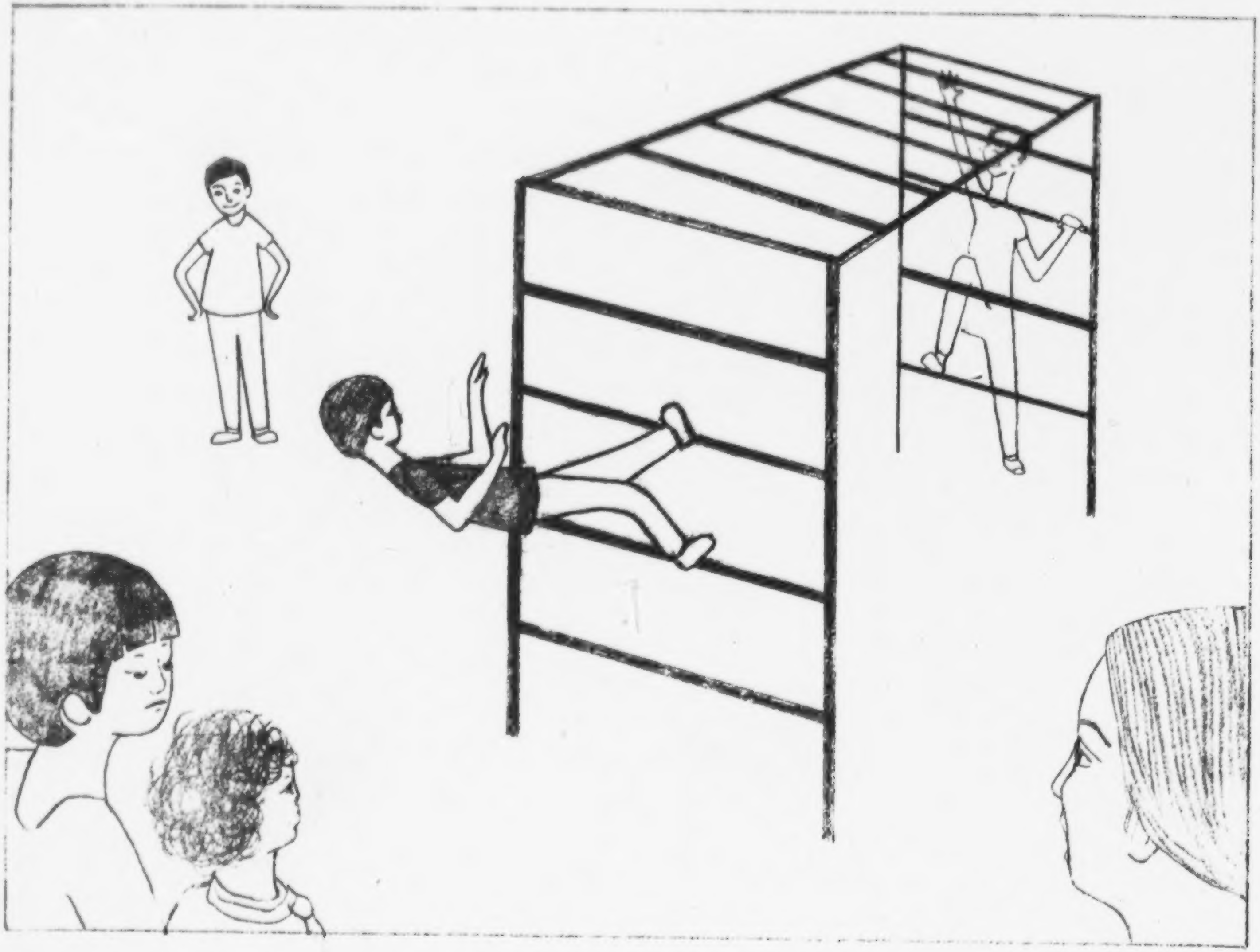
Appendix B-1

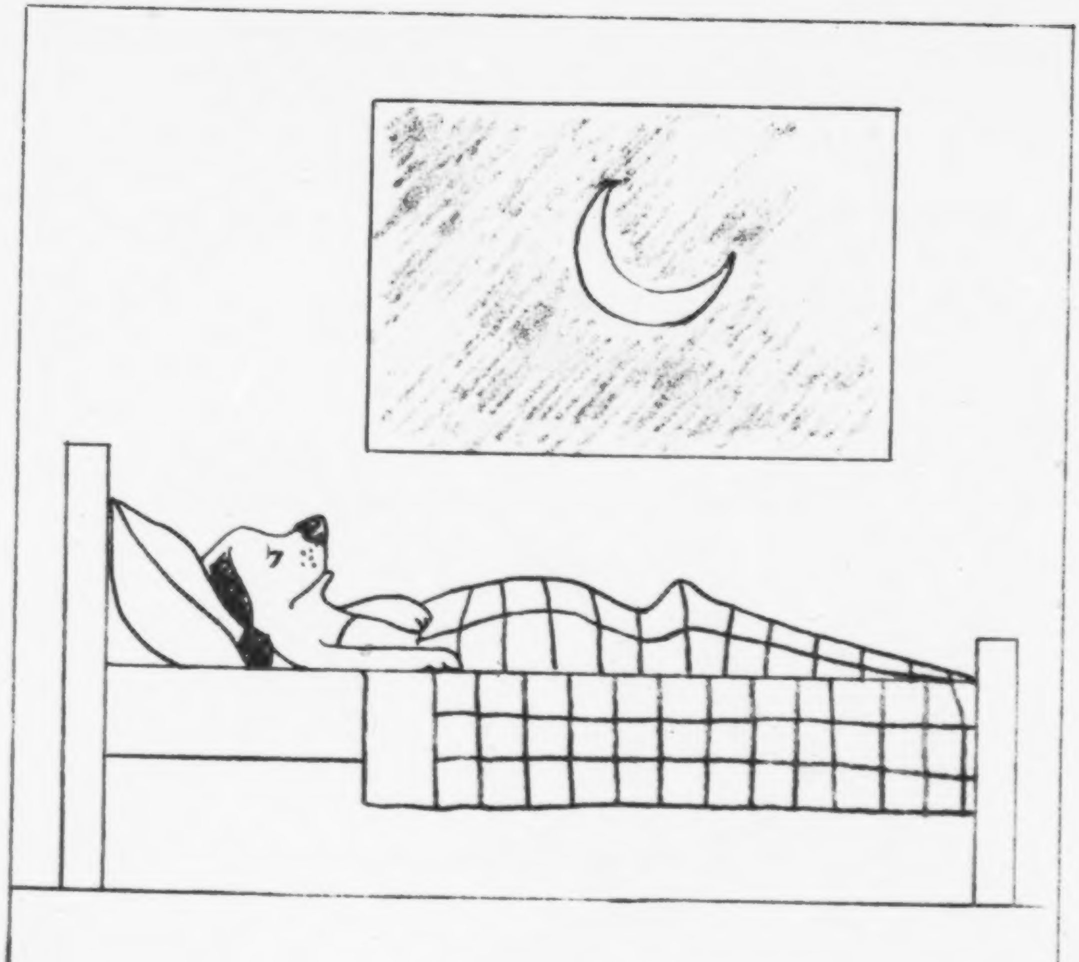
Oral Stimulus

Series C

2 contrast-perception
1 reality-reversal
2 sets, multiple-picture



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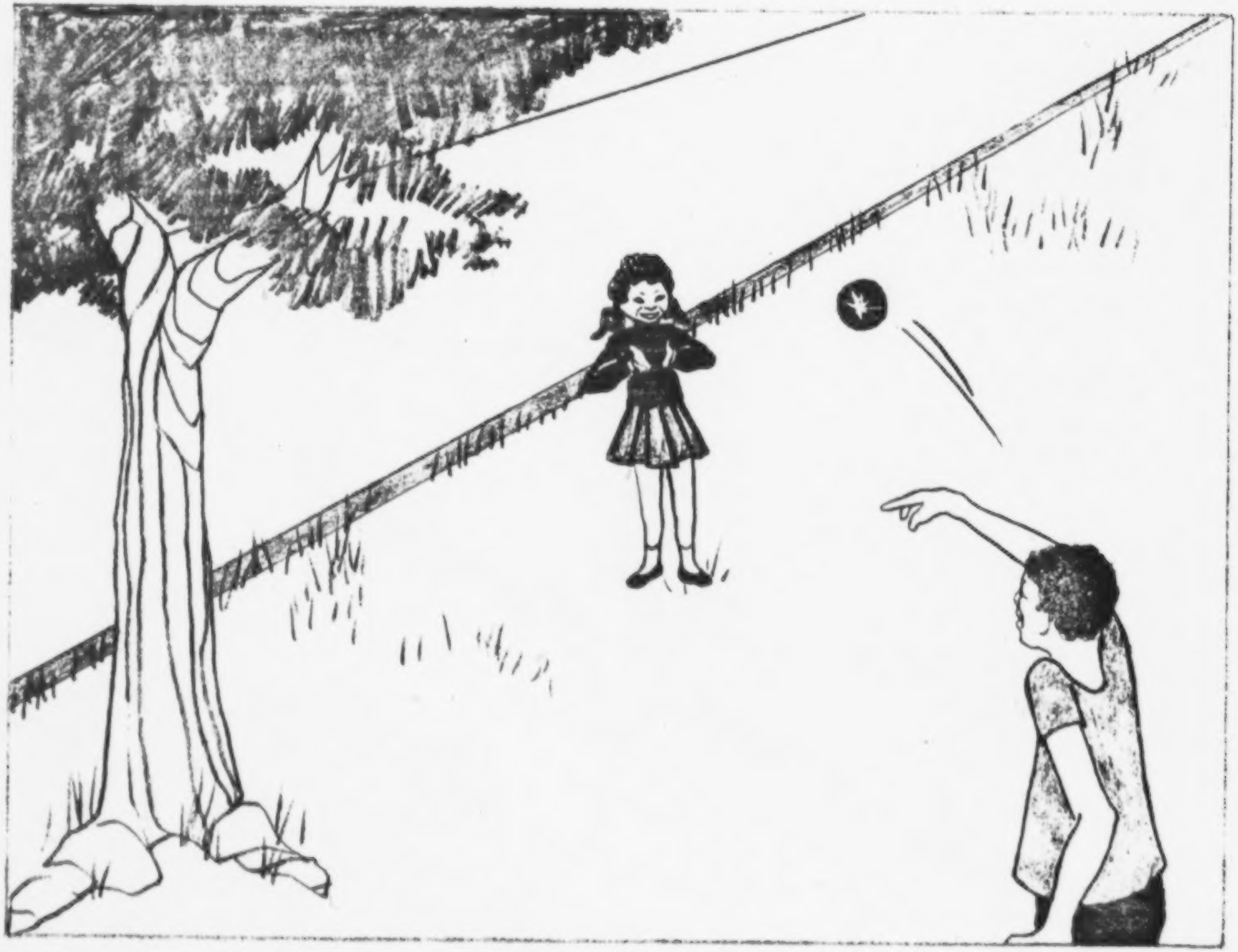
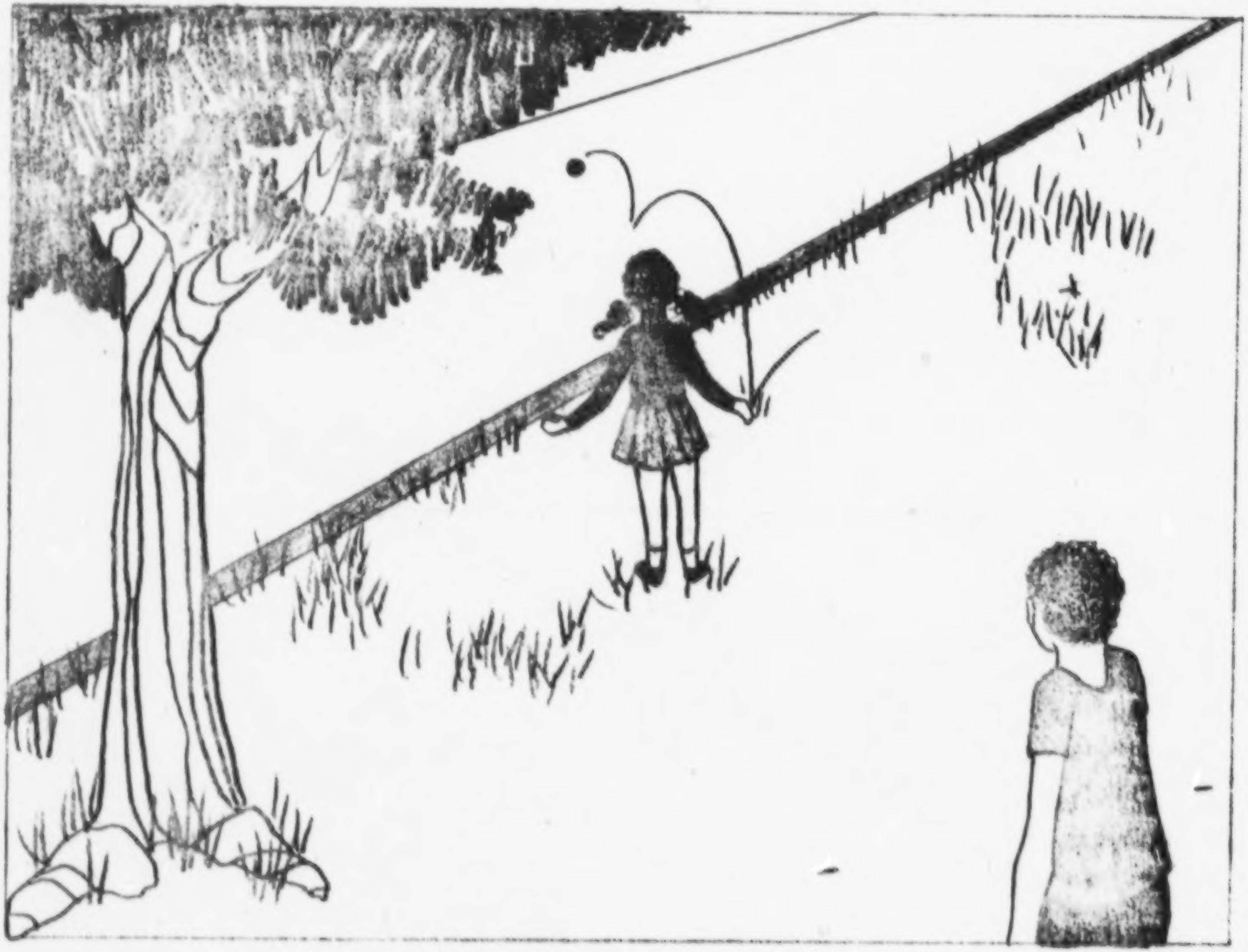
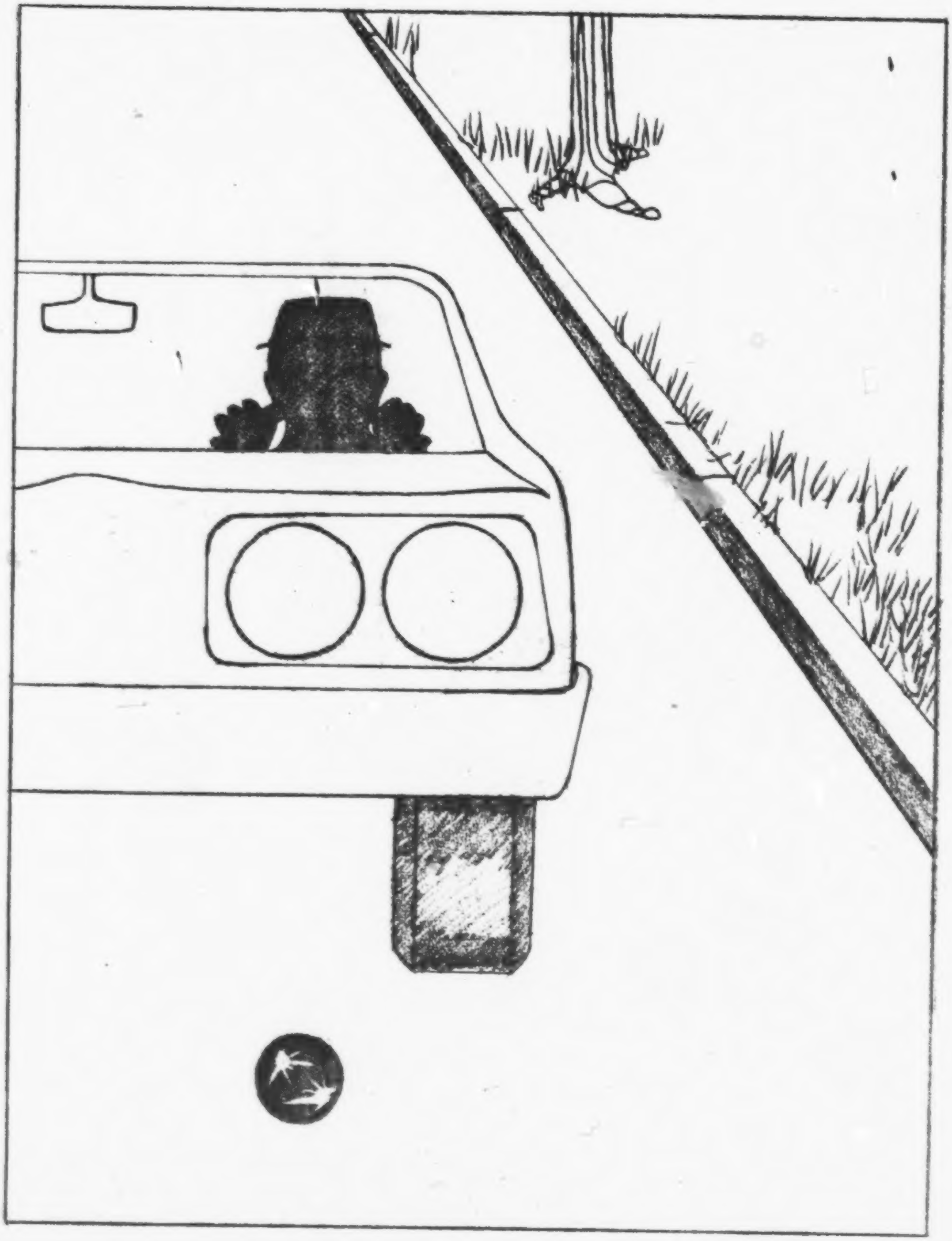
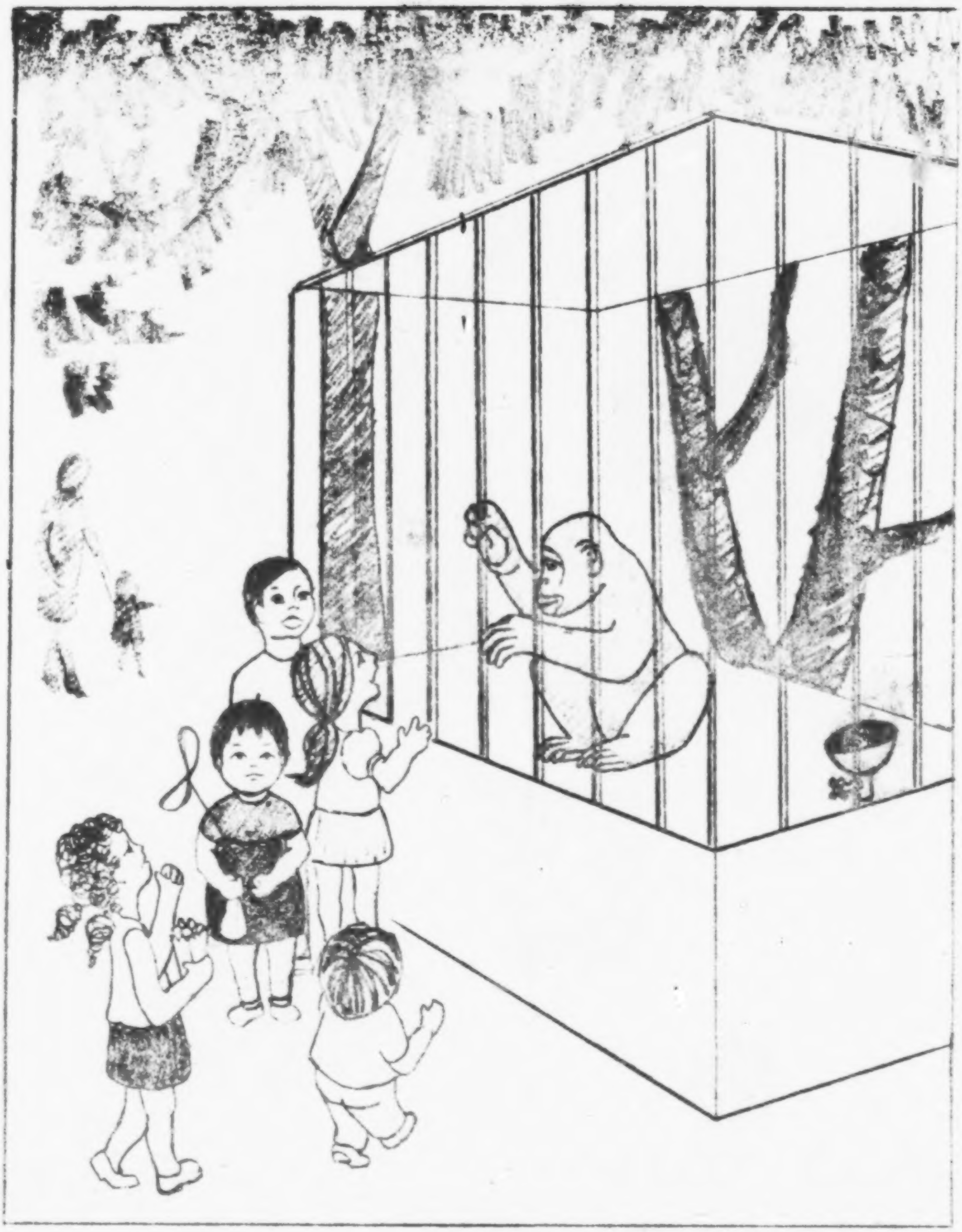
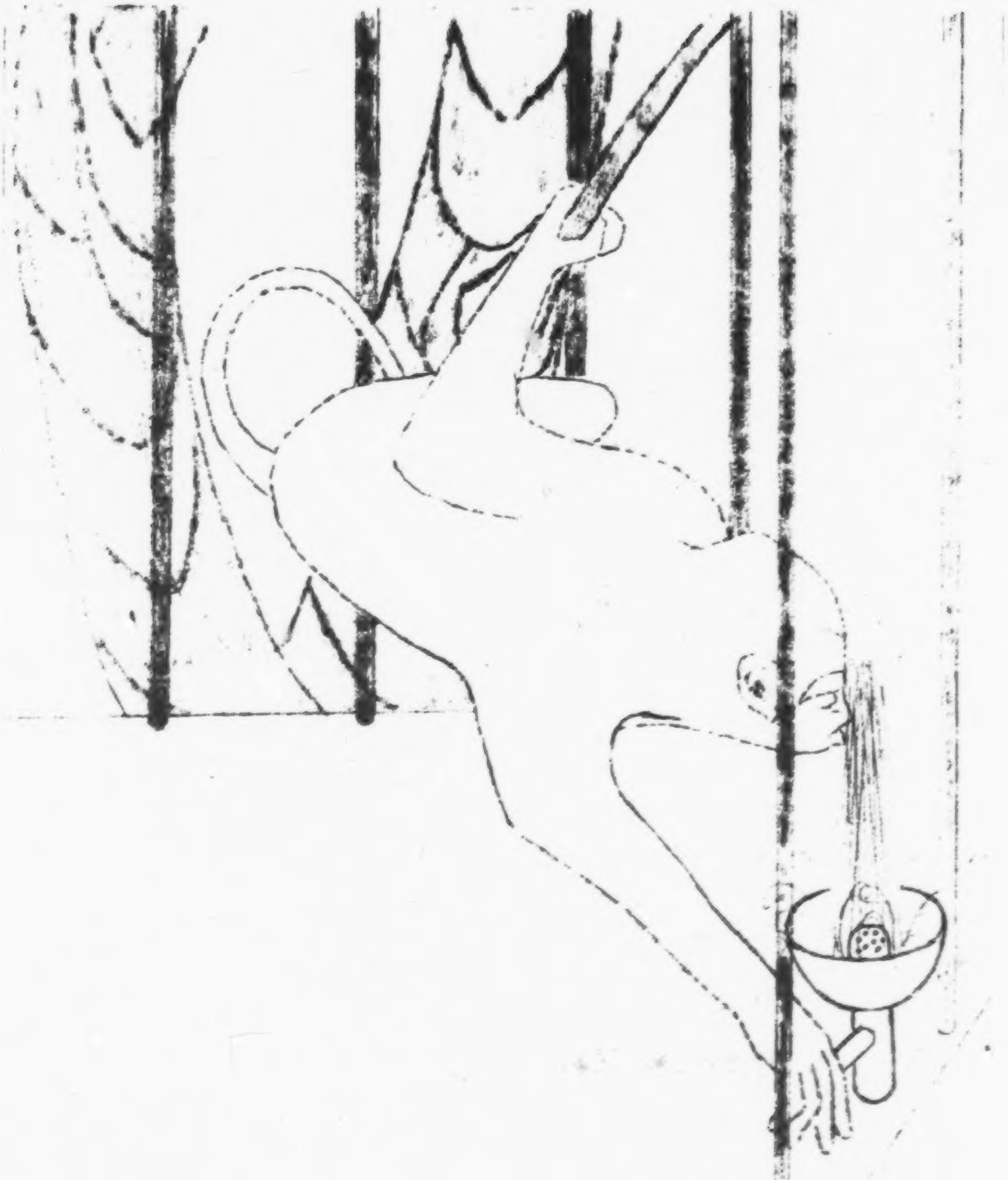
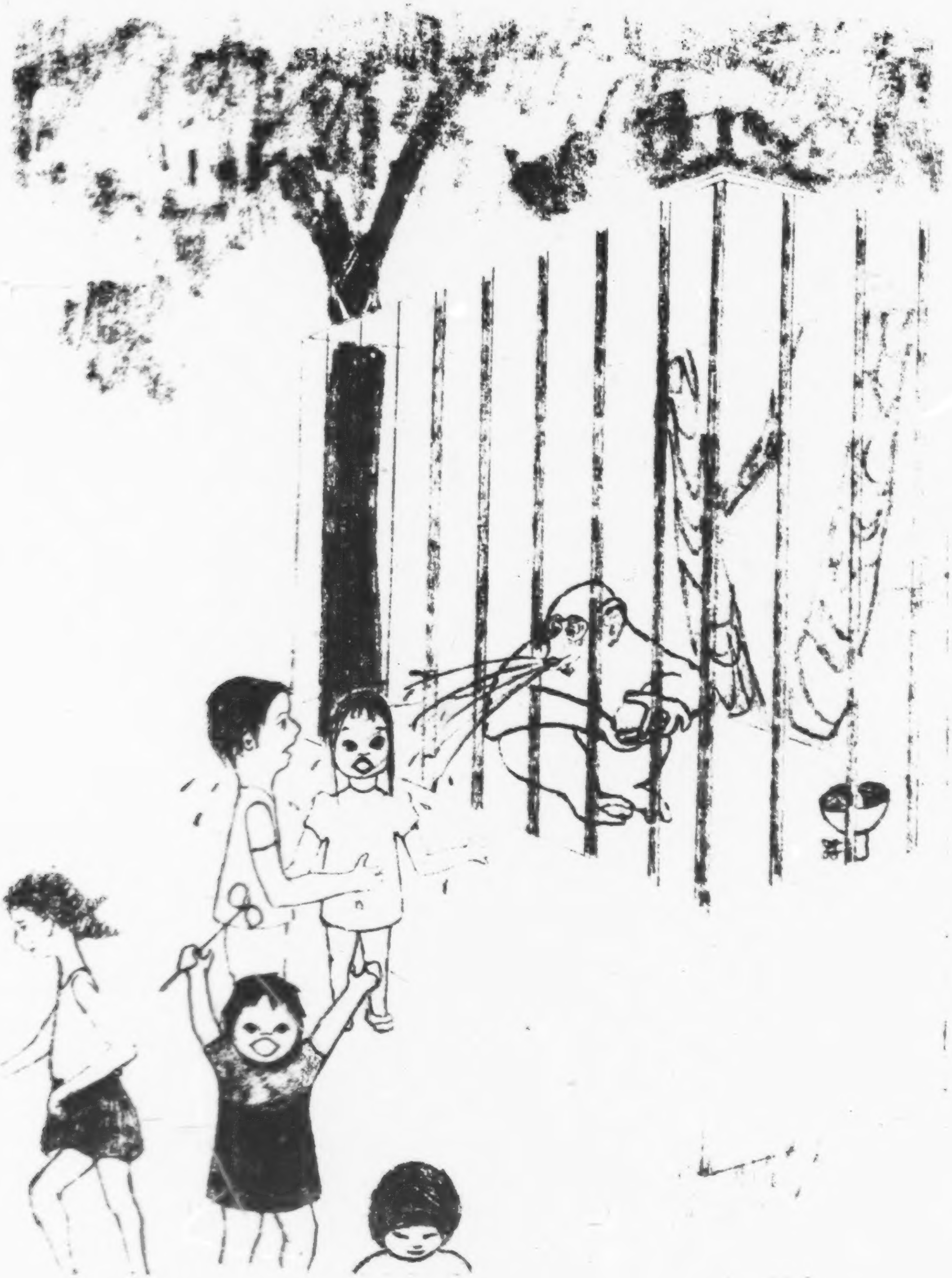












Appendix B-2

Writing Stimulus

3 contrast-perception
3 sets, multiple-picture

WRITING SAMPLE: CONTRAST-PERCEPTION STIMULUS

Directions for Administering

Look carefully at the picture I just gave you. I would like for you to write all about this picture -- what you see in the picture and anything else you may want to write about it.

Write as clearly and neatly as you can so I can read what you say. I'm sure I'll be able to read what you have written and I'm not concerned about misspelled words. Because of this, please do not ask for help in spelling. If you do not know how to spell a word, just spell it the way you think it sounds.

You will have ten minutes to write about the picture. After the ten minutes are over, I'll pick up your paper. If you finish before ten minutes are over, I would like for you to wait quietly in your seat until everyone else is finished.

Do you have any questions? (Pause for questions.) All right, now you may start writing under the picture, on the first line of your paper. Remember, you have ten minutes to write.

Note to the Teacher

Because of the matched nature of the oral and written stimulus situations, the children in your class will not all be writing about the same picture. Eventually, after three writing samples are collected, each child will have written about all three Contrast-Perception pictures being used in the project.

WRITING SAMPLE: MULTIPLE-PICTURE STIMULUS

Directions for Administering

Look carefully at the three pictures I just gave you. I would like for you to write a story about these three pictures -- what is going on in each picture and what you think is happening. Remember, the three pictures go together to make one story.

Write as clearly and neatly as you can so I can read what you say. I'm sure I'll be able to read what you have written and I'm not concerned about misspelled words. Because of this, please do not ask for help in spelling. If you do not know how to spell a word, just spell it the way you think it sounds.

You will have twenty minutes to write about the three pictures. After the twenty minutes are over, I'll pick up your paper. If you finish before twenty minutes are over, I would like for you to wait quietly in your seat until everyone else is finished.

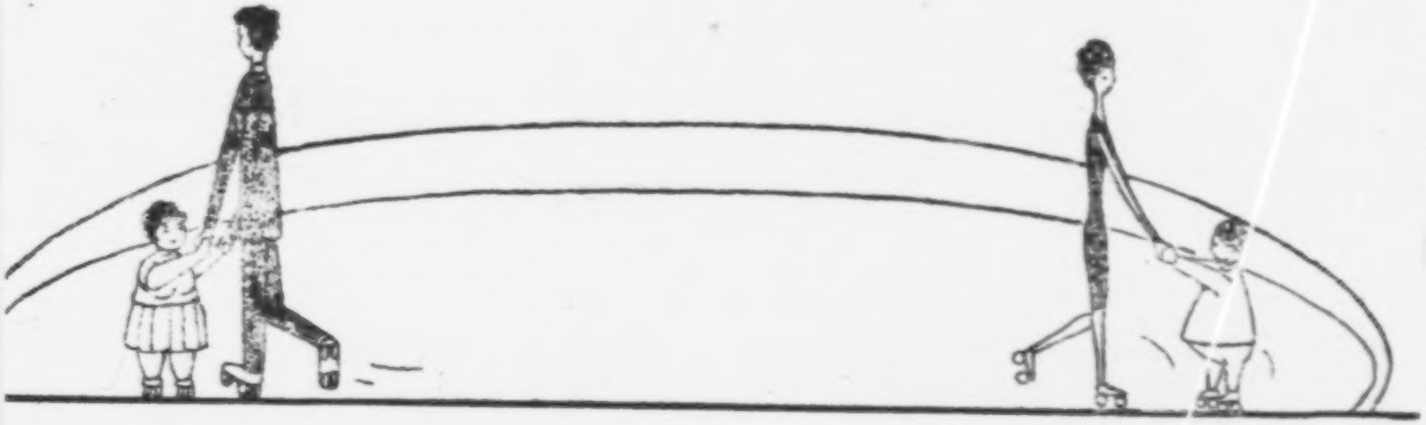
Do you have any questions? (Pause for questions.) All right, now you may start writing under the pictures, on the first line of your paper. Remember, you have twenty minutes to write.

Note to the Teacher

Because of the matched nature of the oral and written stimulus situations, the children in your class will not all be writing about the same pictures. Eventually, after three writing samples are collected, each child will have written about all three Multiple-Picture stimulus situations being used in the project.

NAME: PICTURE NO.: A1

TEACHER: DATE:



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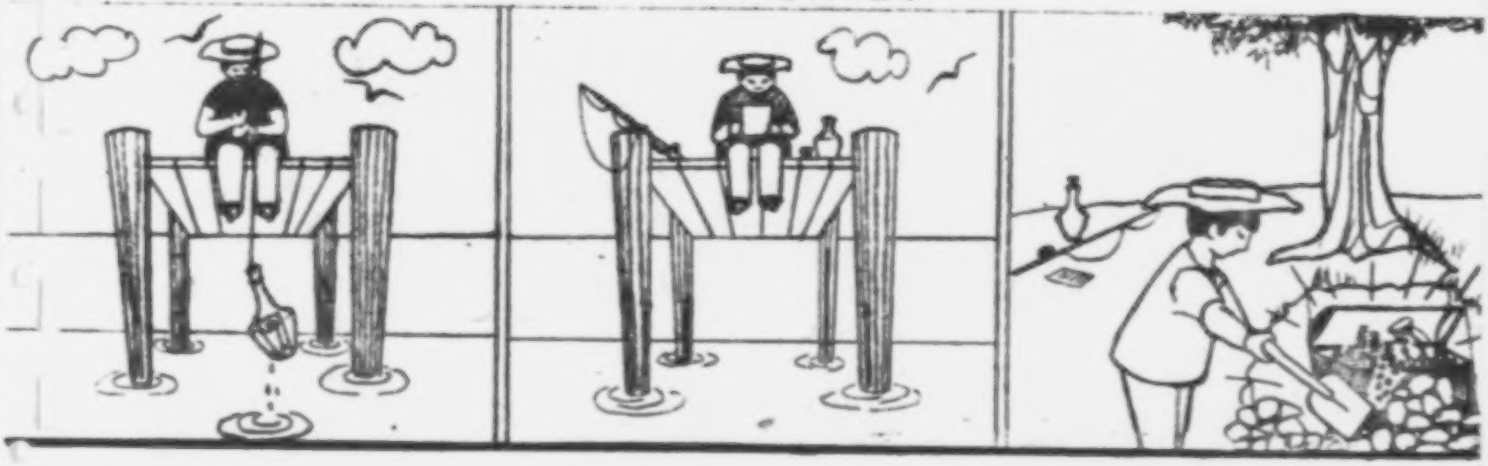
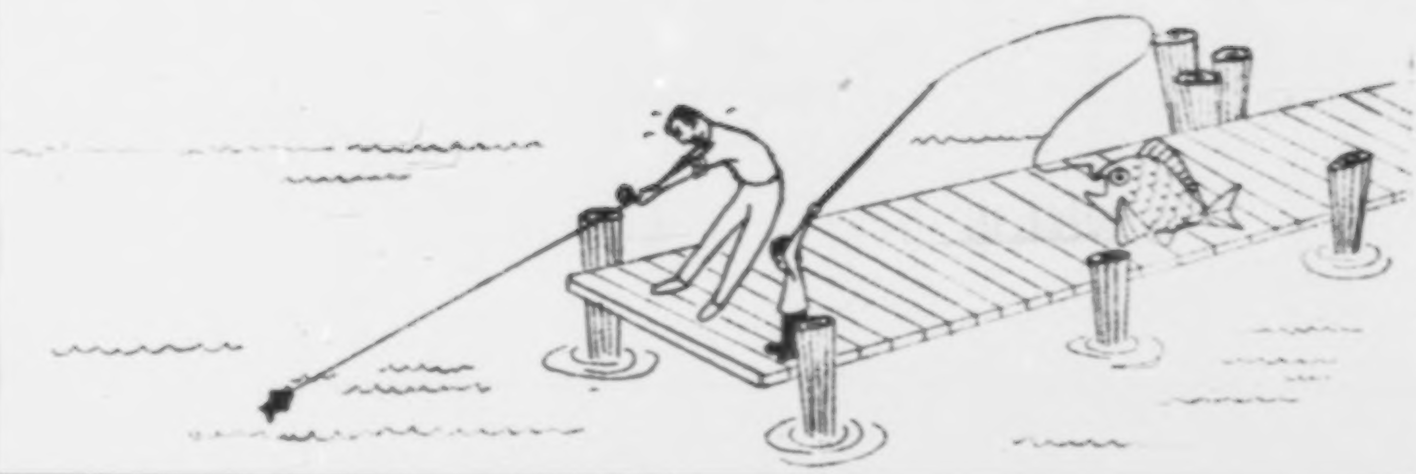


NAME: PICTURE NO.: B1

TEACHER: DATE:

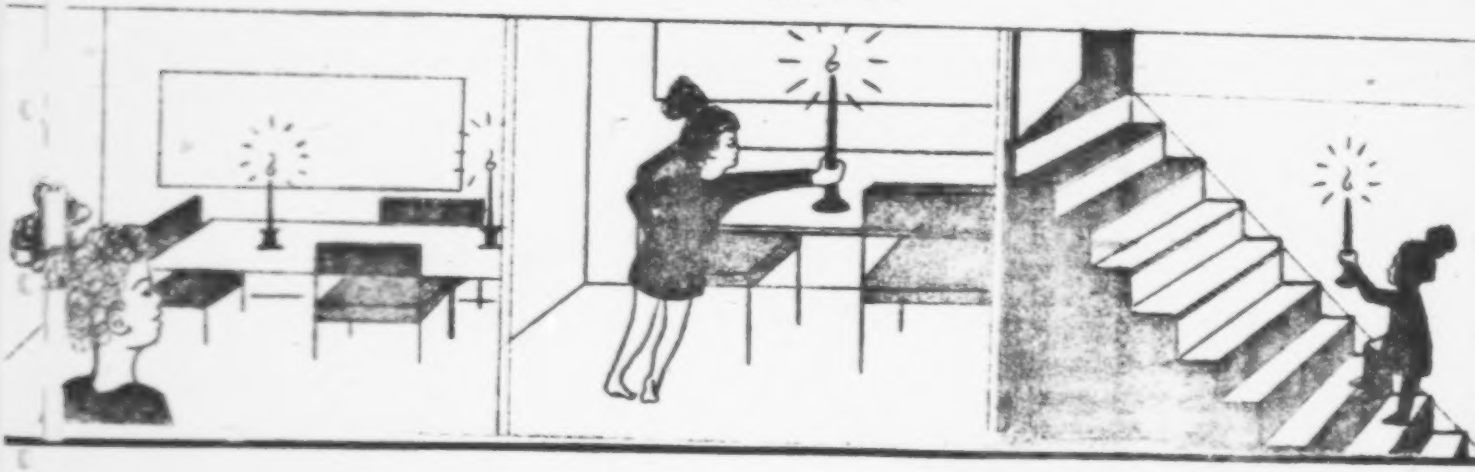


NAME:

PICTURE NO.: B2

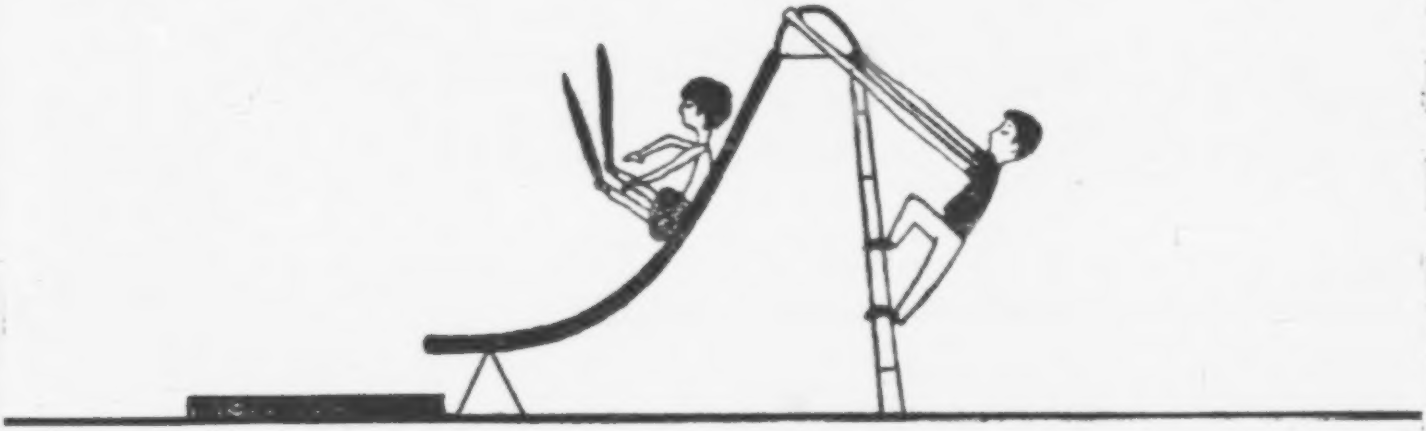
TEACHER:

DATE:



NAME: PICTURE NO.: C1

TEACHER: DATE:



NAME: PICTURE NO.: C2

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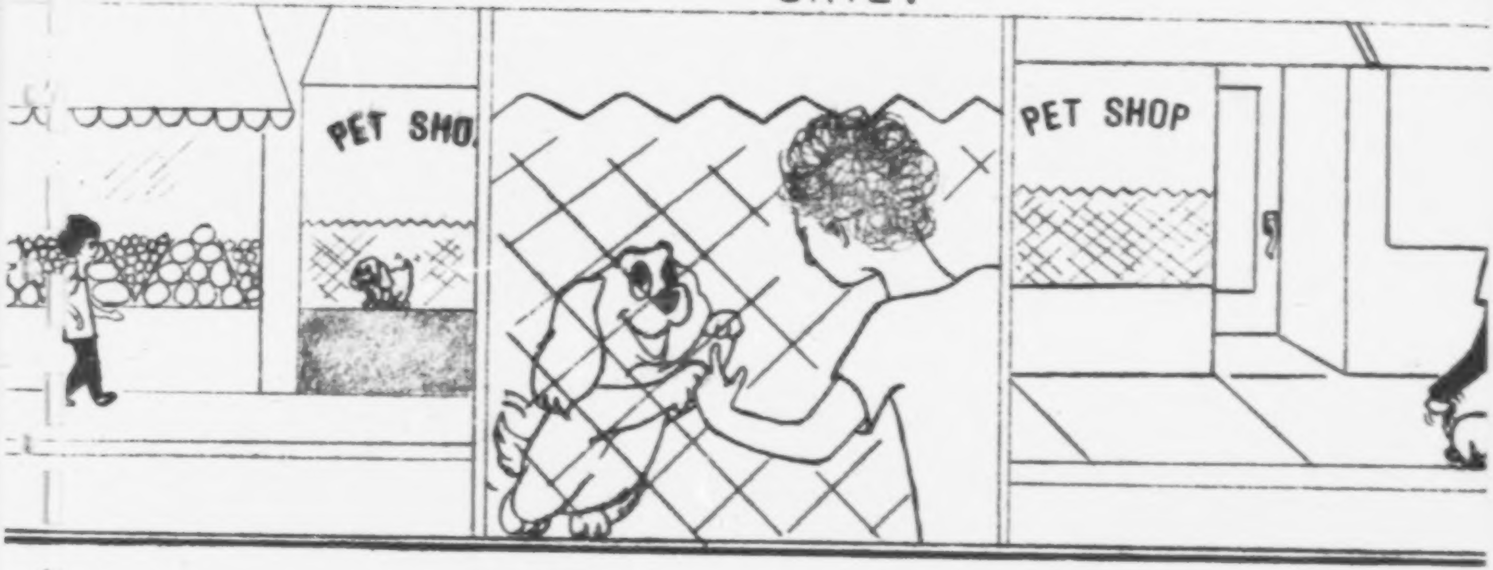
PET SHOP
PET SHOP

Appendix C

THE LISTENING-COMPREHENSION INVENTORY*

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Robert B. Ruddell
Arthur C. Williams
Marilyn J. Williams

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Teacher's Copy

Design of the Instrument

The Listening-Comprehension Inventory is a phonological assessment instrument designed to determine whether or not differences in comprehension arise because of a child's use of non-standard dialect rather than the so-called prestige dialect, i.e., the standard English dialect used by national network newscasters. By way of explanation, it should be stressed that the inventory is not designed to assess difficulties in hearing but rather to assess the non-standard speaker's interpretations of standard English which may or may not lead to differences in comprehension.

The inventory is designed with two separate forms (Form A and Form B). Form A is to be administered to the entire class; and then the next day, Form B is to be administered to the entire class. Each form contains three example warm-up items and 25 items to be assessed by the inventory. Each item contains three pictures; and after listening to the item read aloud, the child is asked to draw a large X through the picture he believes to be the proper response.

Form A of the Inventory

Form A is designed with no context clues and provides an assessment of 25 items in standard English which become homonyms when spoken in non-standard dialect. For example, the non-standard speaker typically drops the t ending on many words. Thus, The tent is under the tree would become The ten is under the tree. Form A, therefore, is designed as an early assessment instrument for determining the degree of comprehension difficulty a non-standard speaker encounters when faced with a combination of homonyms and no contextual clues.

Form B of the Inventory

Form B provides context clues which may help the child comprehend which picture is the proper response (in accordance with standard English) regardless of whether or not he has difficulty with one particular word (i.e., the word which is a homonym in non-standard dialect). For example, in the case of ten and tent, Form B will provide an additional contextual clue: The tent with the flag is under the tree. Thus, by means of this early assessment instrument, it should be possible for the teacher to focus on the precise nature of the child's phonological difficulties and to determine whether or not additional contextual clues provide sufficient information to enable the child to overcome his comprehension difficulty with the homonym feature of one particular word.

Note: Form A and Form B utilize identical pictures; only the form of the text differs.

Directions for Administering the Inventory

A pre-recorded tape will be provided for use with both Form A and Form B of the Listening-Comprehension Inventory. The rationale for using a tape is that each individual teacher has his or her own unique style of speech and intonation patterns. Thus, in a group of 25 teachers, one would have the inventory items spoken in 25 different styles. By using a tape, however, each child hears each item spoken in an identical manner and the inventory is thereby completely comparable from one classroom to the next.

Examples of Items in the Inventory

Three warm-up examples will be used with each form of the inventory.

Form A of the inventory, with no contextual clues, would be as follows:

A. The dog jumps over the wall.
B. The boy kicks the can.
C. The boy kicks the cans.

Form B of the inventory, with contextual clues, would be as follows:

A. The dog jumps over the brick wall.
B. The boy kicks the tin can.
C. The boy kicks the pile of cans.

As an example of the homonym feature of the inventory, the first three items of the inventory are also shown below.

Form A -- homonyms:

1. The tent is under the tree.
2. Oil for the car.
3. A hole in the yard.

Form B -- context clues:

1. The tent with the flag is under the tree.
2. A can of oil for the car.
3. A dog digs a hole in the yard.

Appendix C-1

Form A -- HOMONYMS

THE LISTENING-COMPREHENSION INVENTORY*

Form A

Directions for Administering the Inventory

Note to the Teacher: As the sample items are read on the tape, please check to be sure that all children understand the position of the items (top, middle, and bottom of the page). As the tape progresses, demonstrate at the appropriate times exactly how the children are to turn the page; check to be sure that everyone is on the correct page and the correct item. If necessary, stop the tape and re-orient anyone who is confused.

Taped Instructions

I will read something to you and you will draw a circle around the picture that goes best with what I say. Sometimes it will be easy to find the picture and sometimes it will not be so easy. Do the best you can. Please listen carefully because I will say everything only once. Turn to the first page with pictures on it. Look at the boxes at the top of the page. Draw a circle around the box that shows

The dog jumps over the wall.

Now look at the boxes in the middle of the page. Draw a circle around the box that shows

The boy kicks the can.

Now look at the boxes at the bottom of the page. Draw a circle around the box that shows

The boy kicks the cans.

Now turn to the next page, the page with the airplane at the very top. Remember to listen carefully because I will say everything only once. Now let's begin.

1. Look at the boxes at the top of the page. Draw a circle around the box that shows

The tent is under the tree.

2. Look at the boxes in the middle of the page. Draw a circle around the box that shows

Oil for the car.

3. Look at the boxes at the bottom of the page. Draw a circle around the box that shows

A hole in the yard.

Now turn to the next page, page two, with the apple at the very top.

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4. Look at the boxes at the top of the page. Draw a circle around the box that shows

Four cats.

5. Look at the boxes in the middle of the page. Draw a circle around the box that shows

A fuel truck.

6. Look at the boxes at the bottom of the page. Draw a circle around the box that shows

The bike goes down the road.

Now turn to the next page, page three, with the car at the very top.

7. Look at the boxes at the top of the page. Draw a circle around the box that shows

The cold stove.

8. Look at the boxes in the middle of the page. Draw a circle around the box that shows

Two holes in the yard.

9. Look at the boxes at the bottom of the page. Draw a circle around the box that shows

The stool is in the kitchen.

Now turn to the next page, page four, with the shoe at the very top.

10. Look at the boxes at the top of the page. Draw a circle around the box that shows

A bowl is in her hand.

11. Look at the boxes in the middle of the page. Draw a circle around the box that shows

The children play in the wind.

12. Look at the boxes at the bottom of the page. Draw a circle around the box that shows

A tool box.

Now turn to the next page, page five, with the boat at the very top.

13. Look at the boxes at the top of the page. Draw a circle around the box that shows

The children hold hands.

14. Look at the boxes in the middle of the page. Draw a circle around the box that shows

The boy runs to the gold.

15. Look at the boxes at the bottom of the page. Draw a circle around the box that shows

The mold on the cheese.

Now turn to the next page, page six, with the chair at the very top.

16. Look at the boxes at the top of the page. Draw a circle around the box that shows

More food for the cow.

17. Look at the boxes in the middle of the page. Draw a circle around the box that shows

The hose filled with water.

18. Look at the boxes at the bottom of the page. Draw a circle around the box that shows

The toll bridge.

Now turn to the next page, page seven, with the cup at the very top.

19. Look at the boxes at the top of the page. Draw a circle around the box that shows

The children mind.

20. Look at the boxes in the middle of the page. Draw a circle around the box that shows

The police find the man.

21. Look at the boxes at the bottom of the page. Draw a circle around the box that shows

The boys hold the dirt.

Now turn to the next page, page eight, with the bird at the very top.

22. Look at the boxes at the top of the page. Draw a circle around the box that shows

The boys roll the boat.

23. Look at the boxes in the middle of the page. Draw a circle around the box that shows

The coal stove.

24. Look at the boxes at the bottom of the page. Draw a circle around the box that shows

The mole on the cheese.

Now turn to the next page, page nine, with the fish at the very top.

25. Look at the boxes on this page. Draw a circle around the box that shows

The girl's whole hand.

Appendix C-2

Form B -- CONTEXT

THE LISTENING-COMPREHENSION INVENTORY*

Form B

Directions for Administering the Inventory

Note to the Teacher: As the sample items are read on the tape, please check to be sure that all children understand the position of the items (top, middle, and bottom of the page). As the tape progresses, demonstrate at the appropriate times exactly how the children are to turn the page; check to be sure that everyone is on the correct page and the correct item. If necessary, stop the tape and re-orient anyone who is confused.

Taped Instructions

I will read something to you and you will draw a circle around the picture that goes best with what I say. Sometimes it will be easy to find the picture and sometimes it will not be so easy. Do the best you can. Please listen carefully because I will say everything only once. Turn to the first page with pictures on it. Look at the boxes at the top of the page. Draw a circle around the box that shows

The dog jumps over the brick wall.

Now look at the boxes in the middle of the page. Draw a circle around the box that shows

The boy kicks the tin can.

Now look at the boxes at the bottom of the page. Draw a circle around the box that shows

The boy kicks the pile of cans.

Now turn to the next page, the page with the airplane at the very top. Remember to listen carefully because I will say everything only once. Now let's begin.

1. Look at the boxes at the top of the page. Draw a circle around the box that shows

The tent with the flag is under the tree.

2. Look at the boxes in the middle of the page. Draw a circle around the box that shows

A can of oil for the car.

3. Look at the boxes at the bottom of the page. Draw a circle around the box that shows

The dog digs a hole in the yard.

Now turn to the next page, page two, with the apple at the very top.

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4. Look at the boxes at the top of the page. Draw a circle around the box that shows

Four cats drinking milk.

5. Look at the boxes in the middle of the page. Draw a circle around the box that shows

A fuel truck with a star on it.

6. Look at the boxes at the bottom of the page. Draw a circle around the box that shows

The bike goes down the road toward the car.

Now turn to the next page, page three, with the car at the very top.

7. Look at the boxes at the top of the page. Draw a circle around the box that shows

The cold stove has no fire.

8. Look at the boxes in the middle of the page. Draw a circle around the box that shows

A dog dug two holes in the yard.

9. Look at the boxes at the bottom of the page. Draw a circle around the box that shows

The stool with three legs is in the kitchen.

Now turn to the next page, page four, with the shoe at the very top.

10. Look at the boxes at the top of the page. Draw a circle around the box that shows

A bowl of hot soup is in her hand.

11. Look at the boxes in the middle of the page. Draw a circle around the box that shows

The children wearing hats play in the wind.

12. Look at the boxes at the bottom of the page. Draw a circle around the box that shows

A tool box with a hammer in it.

Now turn to the next page, page five, with the boat at the very top.

13. Look at the boxes at the top of the page. Draw a circle around the box that shows

The children standing in a row hold hands.

14. Look at the boxes in the middle of the page. Draw a circle around the box that shows

The boy runs to the pile of gold.

15. Look at the boxes at the bottom of the page. Draw a circle around the box that shows

There are spots of mold on the cheese.

Now turn to the next page, page six, with the chair at the very top.

16. Look at the boxes at the top of the page. Draw a circle around the box that shows

The boy carries more food for the cow.

17. Look at the boxes in the middle of the page. Draw a circle around the box that shows

The hose filled with water sprinkles the yard.

18. Look at the boxes at the bottom of the page. Draw a circle around the box that shows

The toll bridge costs twenty-five cents.

Now turn to the next page, page seven, with the cup at the very top.

19. Look at the boxes at the top of the page. Draw a circle around the box that shows

The children mind the safety patrol.

20. Look at the boxes in the middle of the page. Draw a circle around the box that shows

The police find the man by the trees.

21. Look at the boxes at the bottom of the page. Draw a circle around the box that shows

The boys hold the dirt without dropping it.

Now turn to the next page, page eight, with the bird at the very top.

22. Look at the boxes at the top of the page. Draw a circle around the box that shows

The boys roll the boat on a trailer with wheels.

23. Look at the boxes in the middle of the page. Draw a circle around the box that shows

The coal stove has a lot of smoke.

24. Look at the boxes at the bottom of the page. Draw a circle around the box that shows

The mole on the cheese has a tail.

Now turn to the next page, page nine, with the fish at the very top.

25. Look at the boxes on this page. Draw a circle around the box that shows

The girl's whole hand with a watch.

THE LISTENING-COMPREHENSION INVENTORY*

Form A
and
Form B

NAME:________________ TEACHER:________________ DATE:________________

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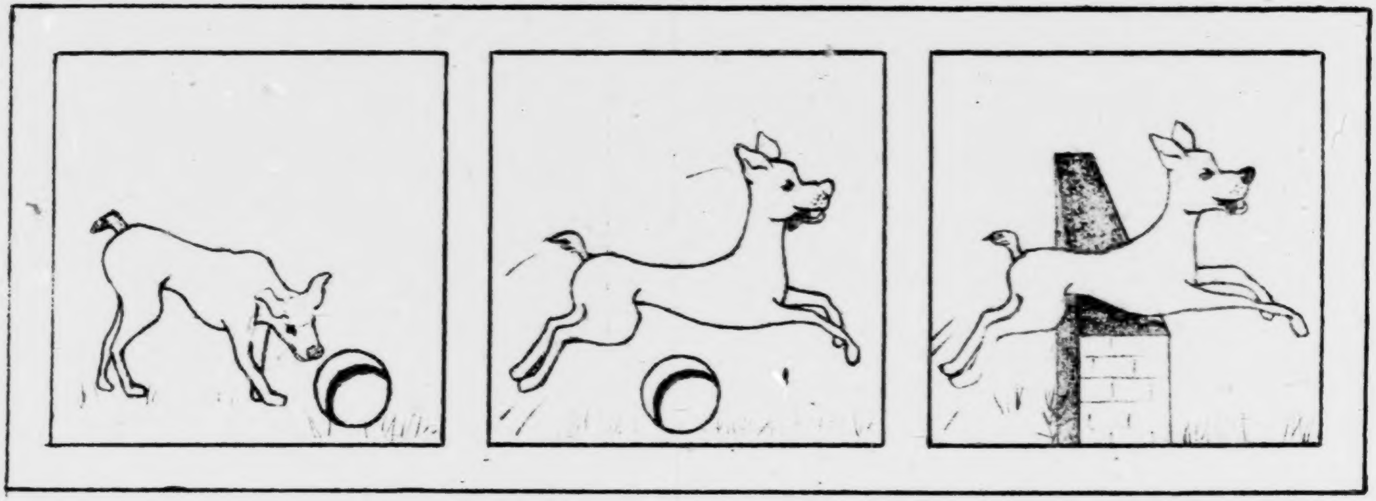

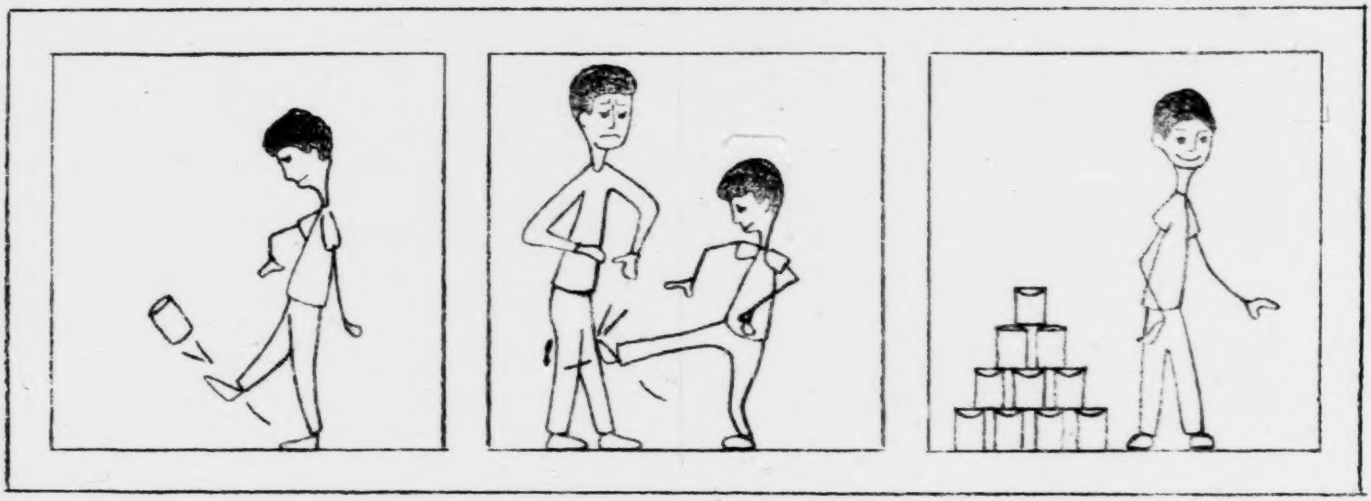

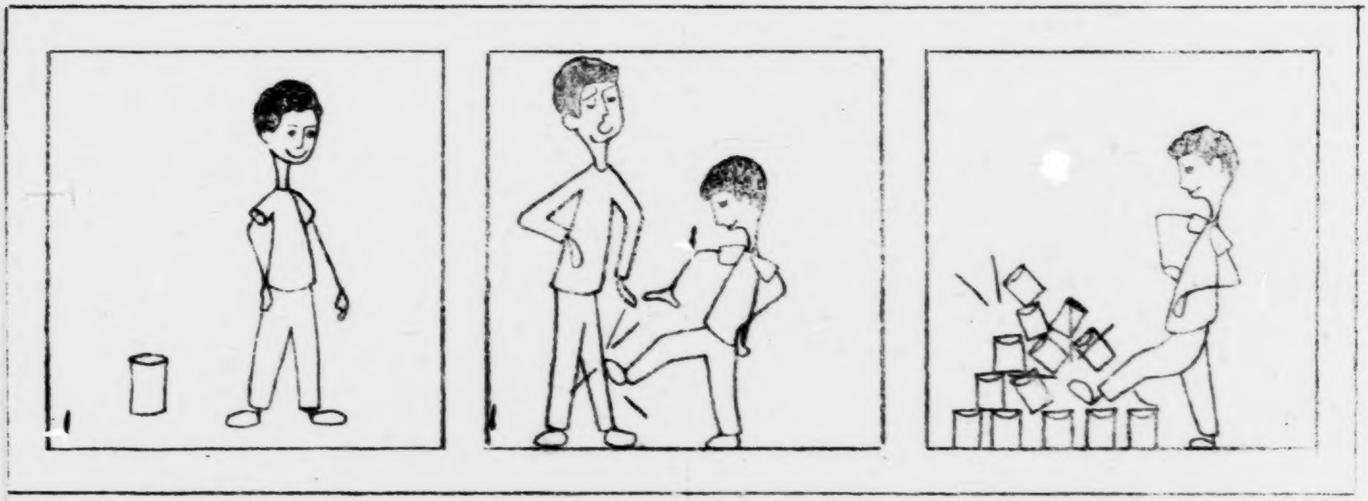

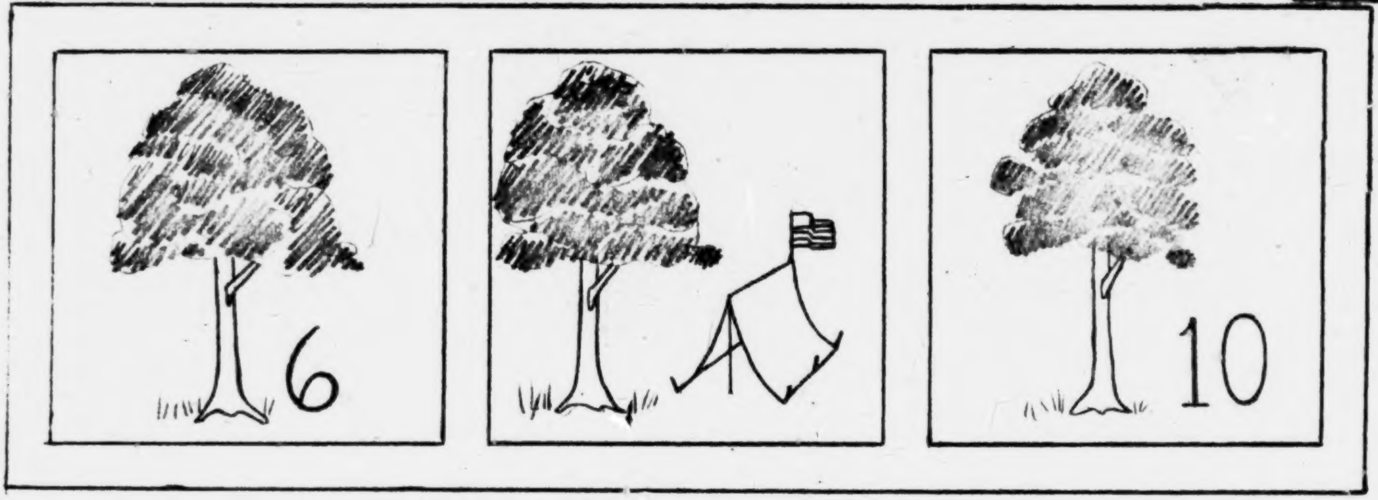
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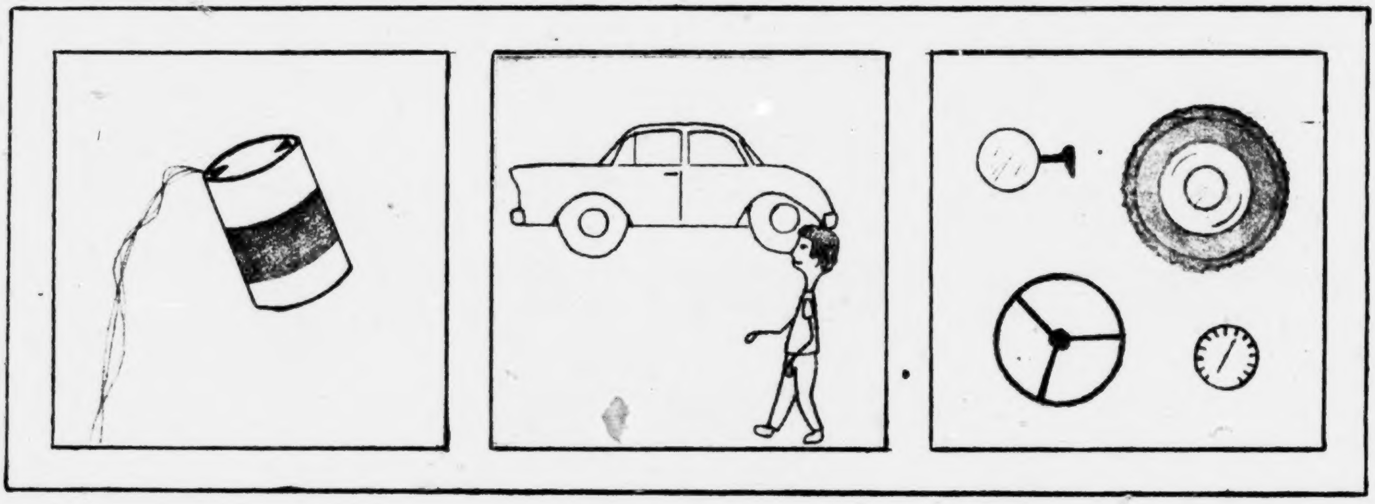

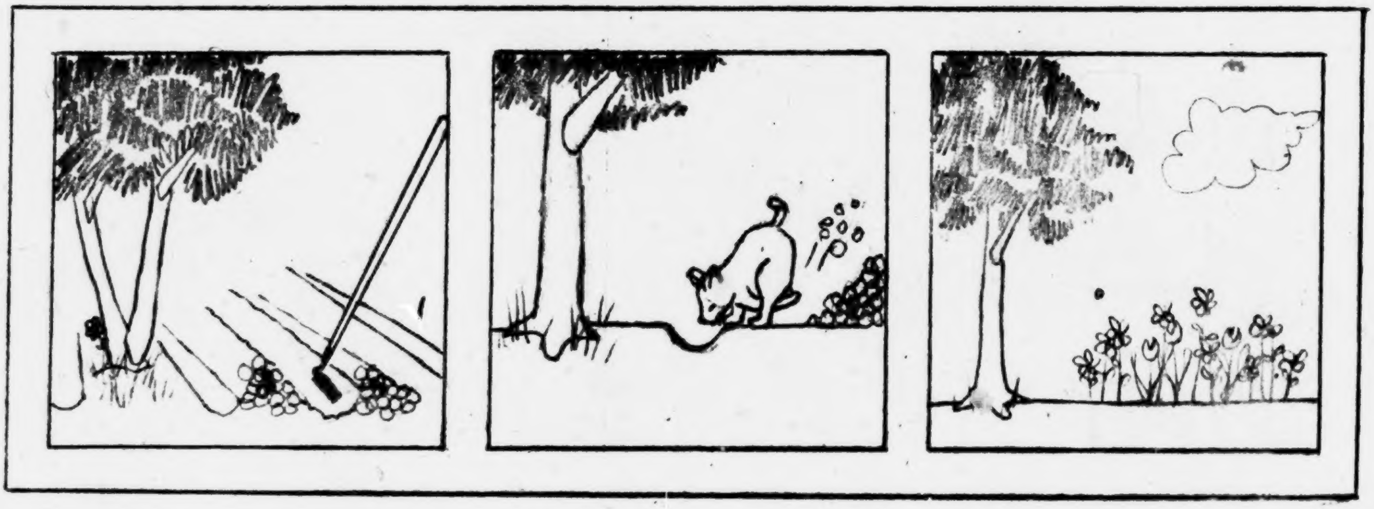

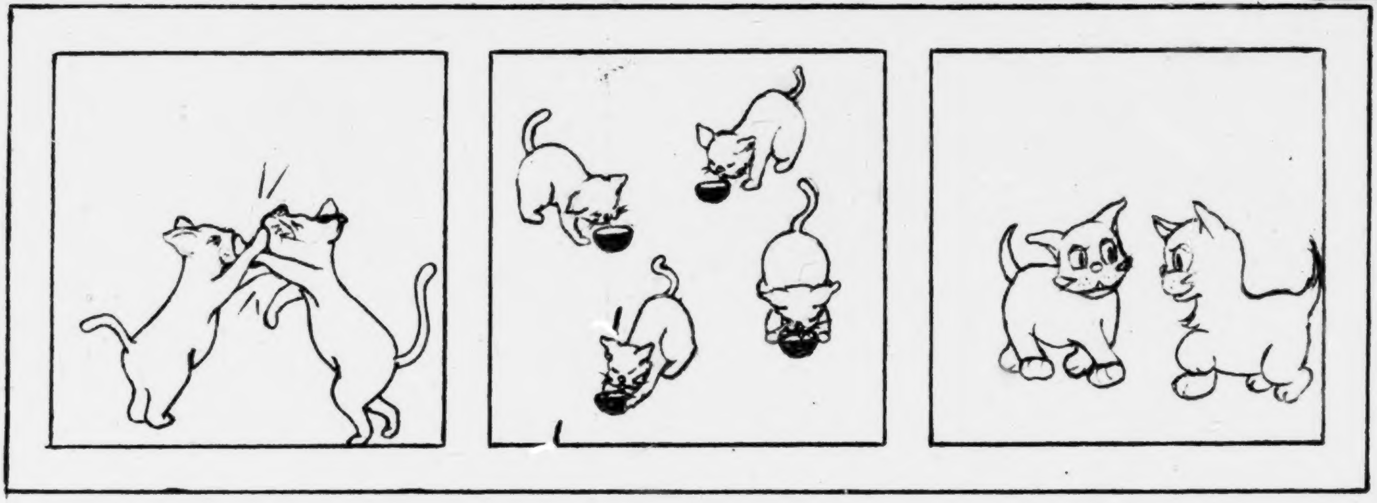

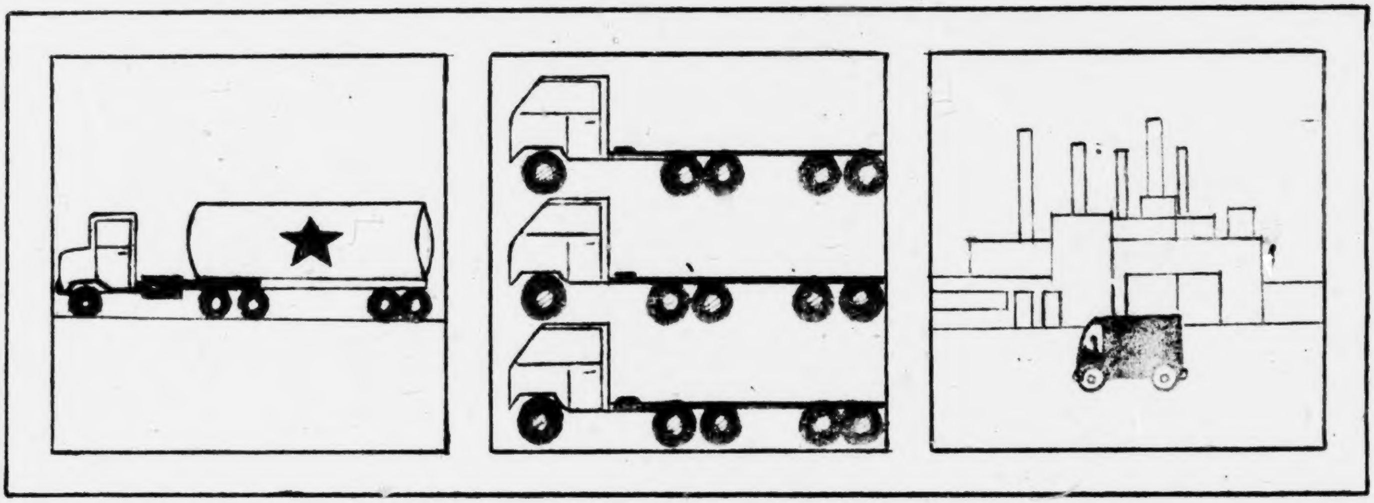

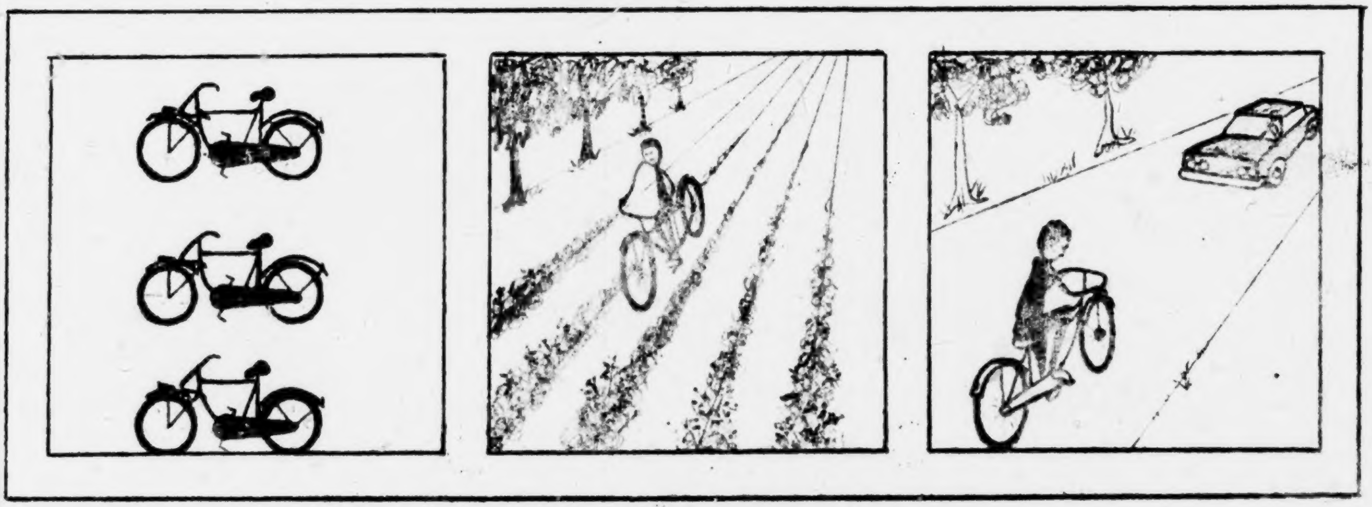

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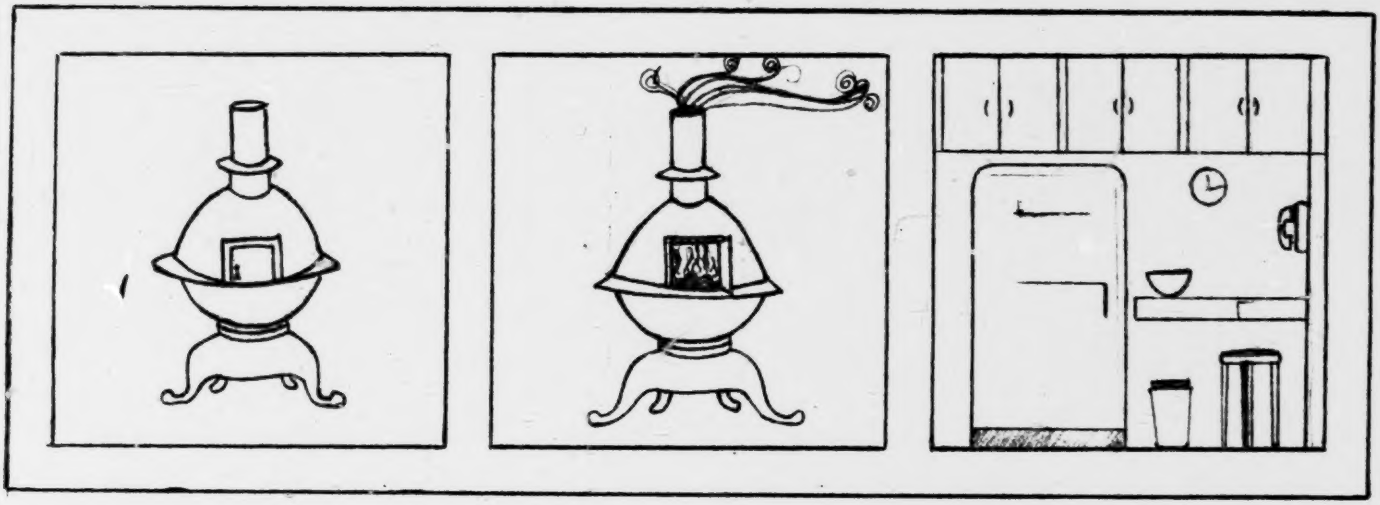

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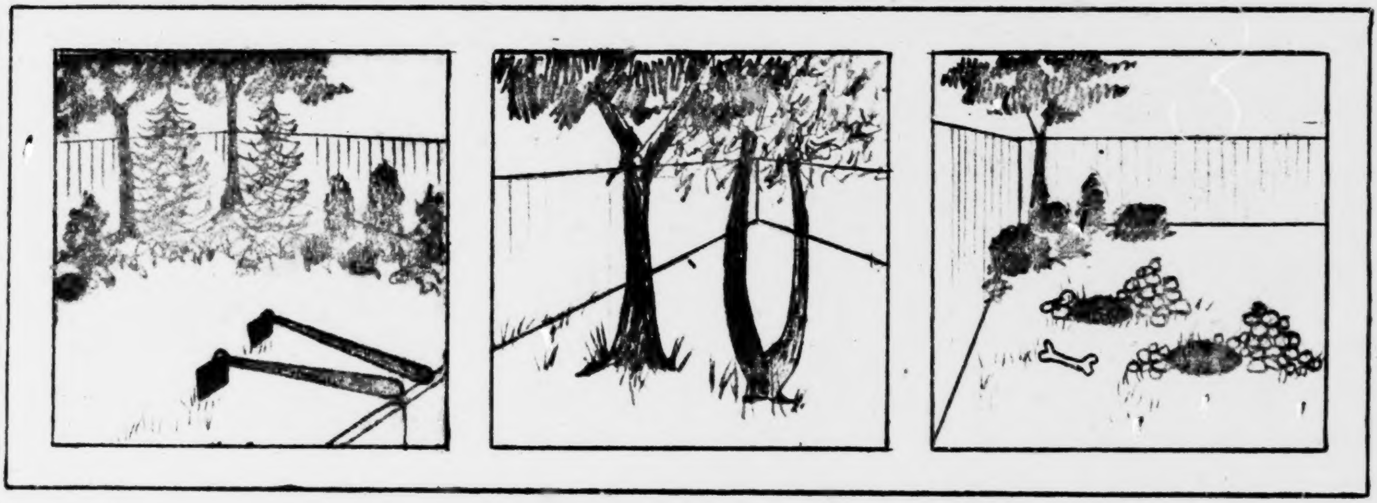

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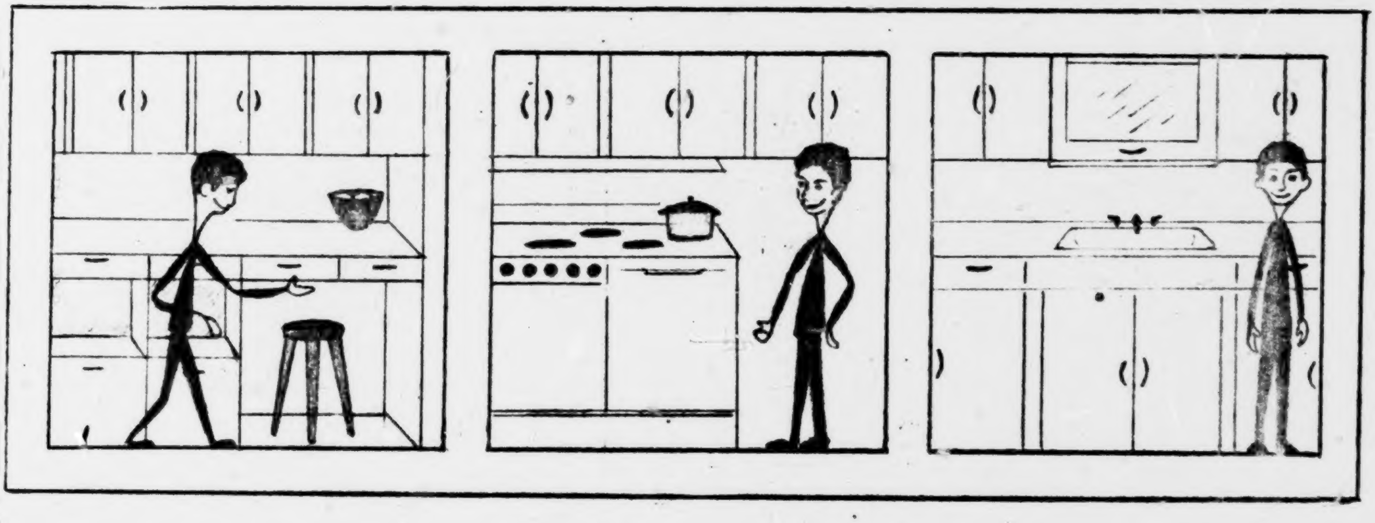

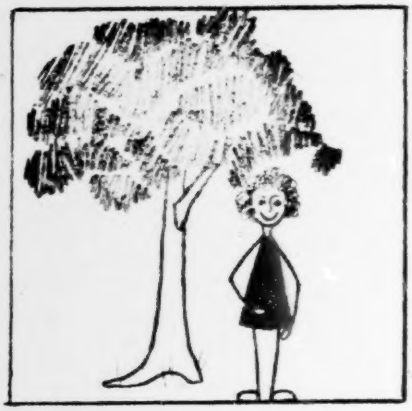

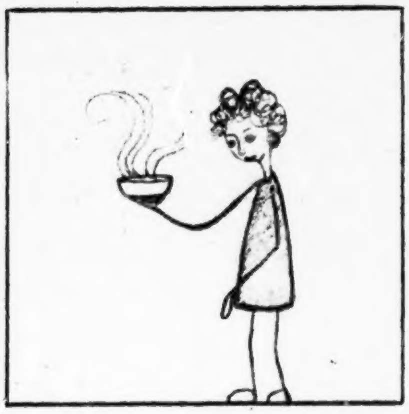

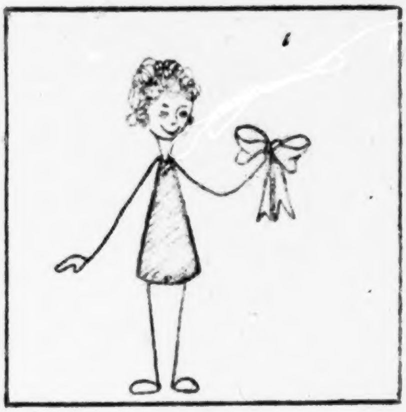

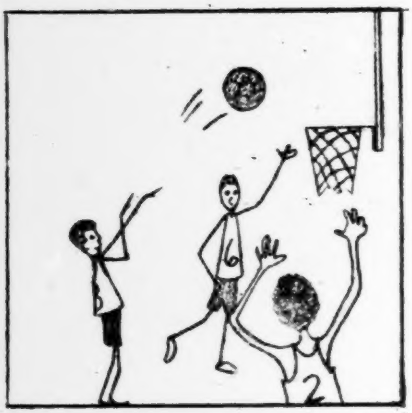
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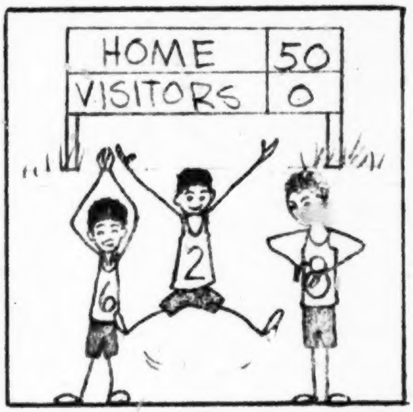
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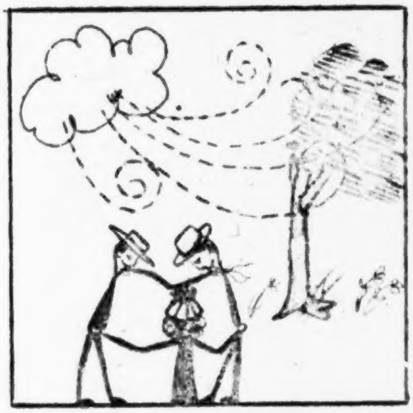

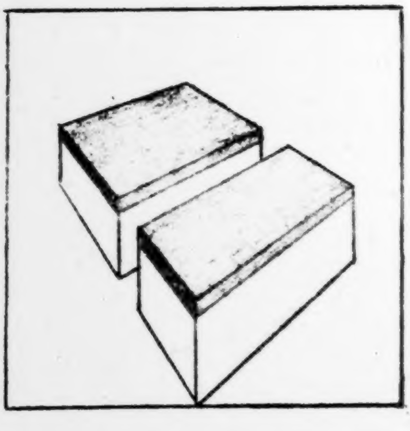

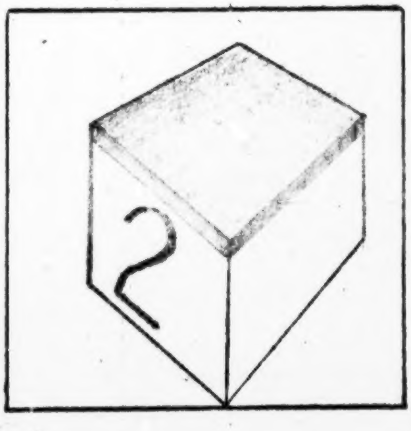
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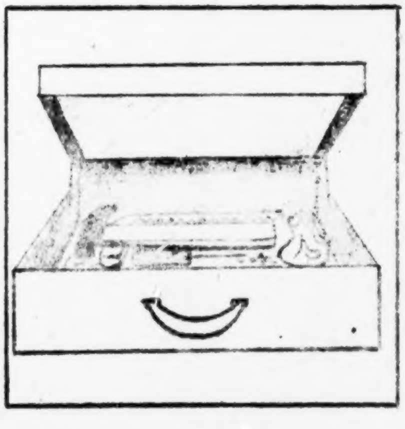

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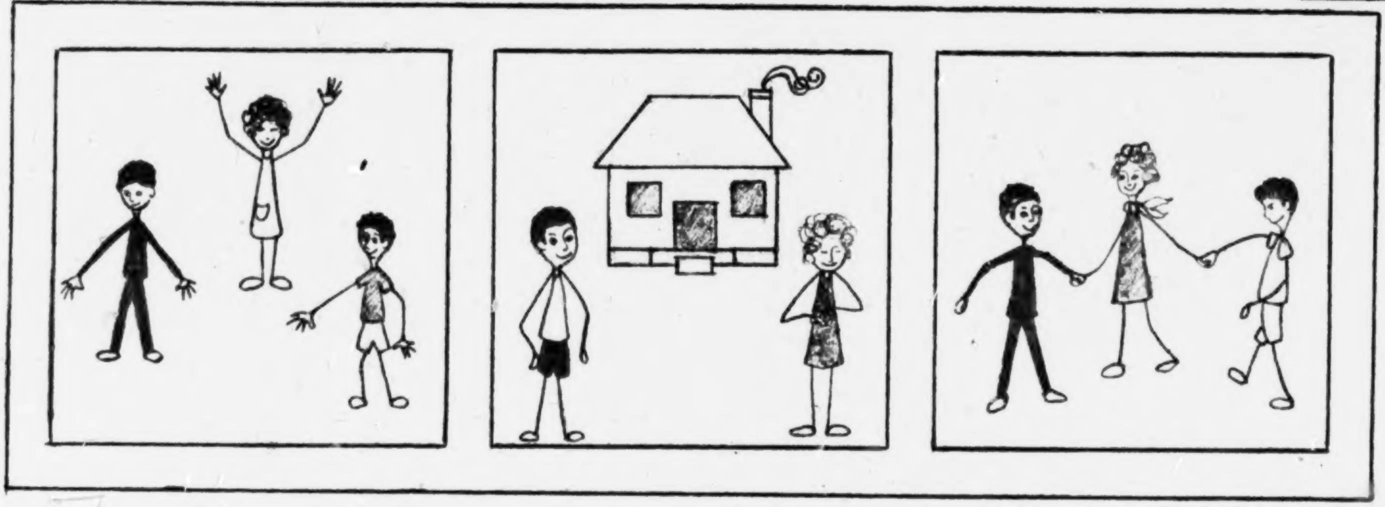

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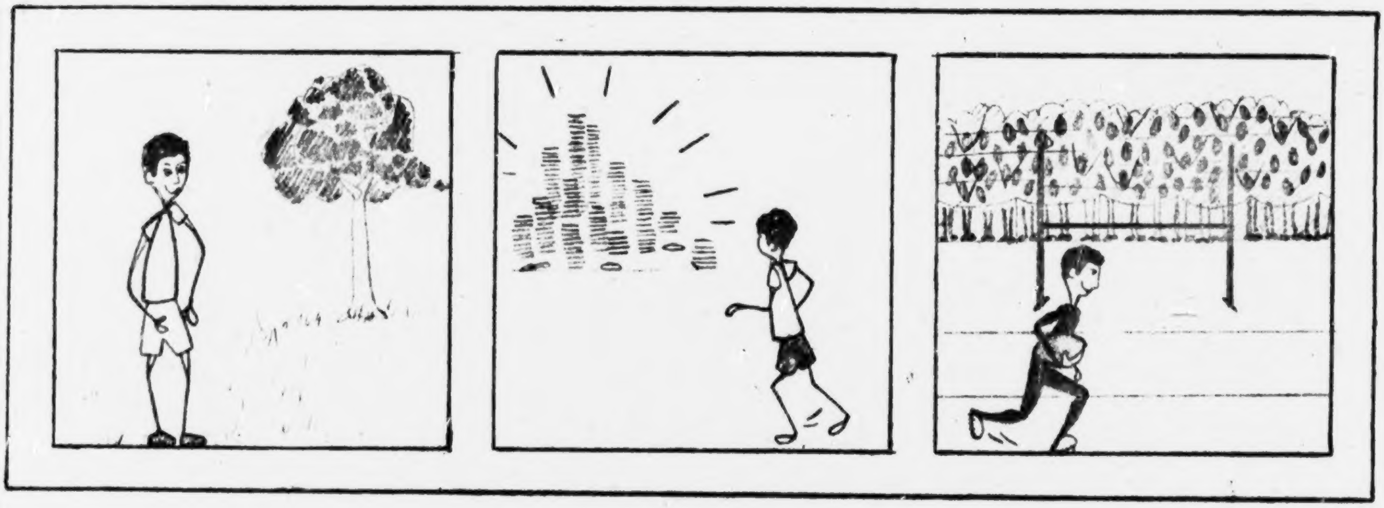

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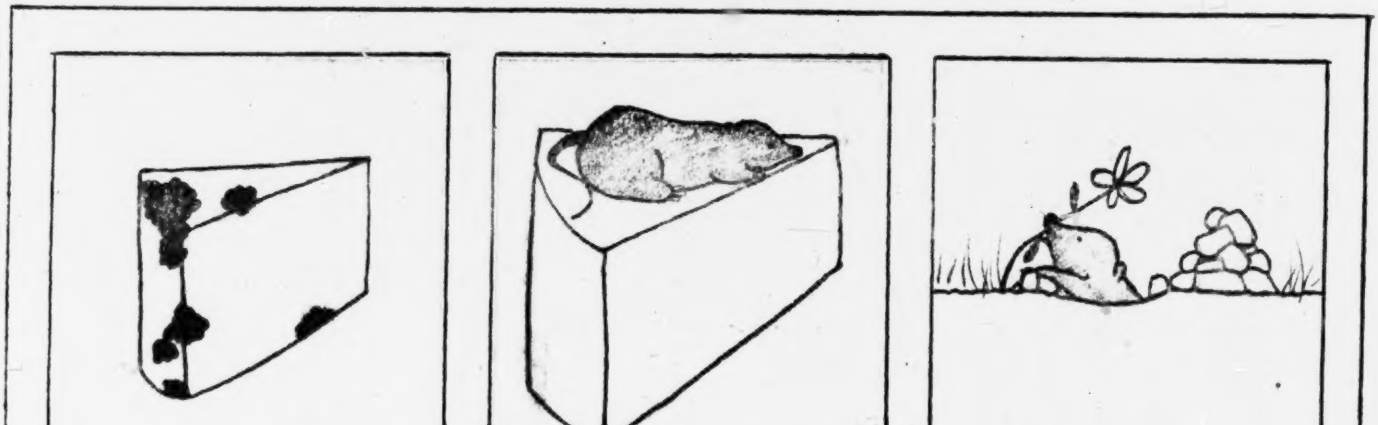

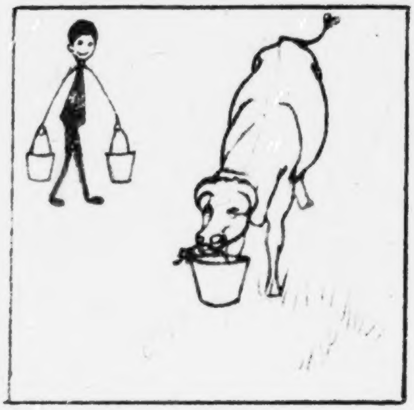

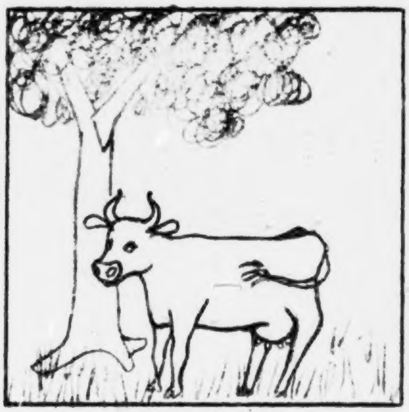

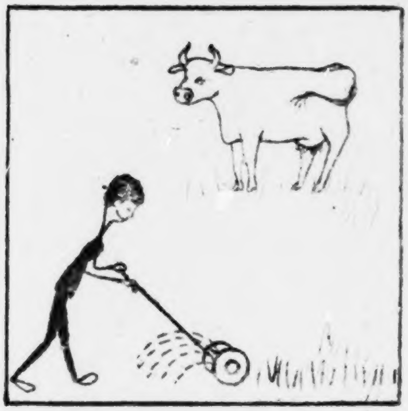

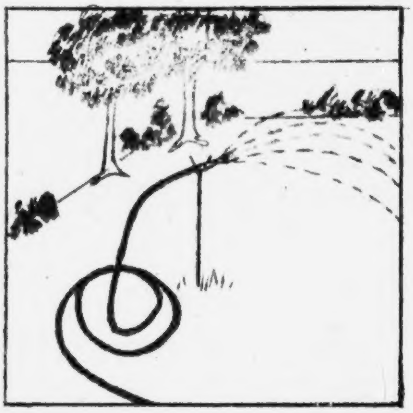

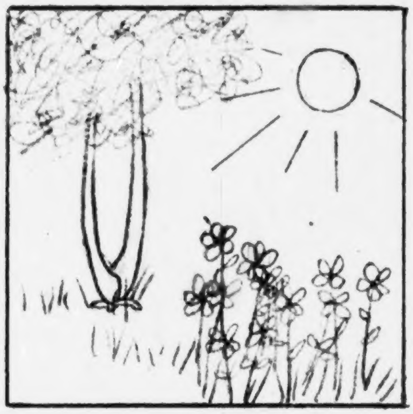

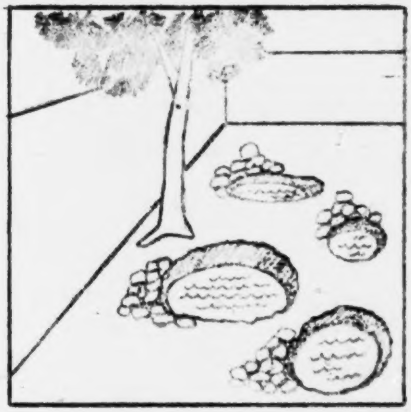

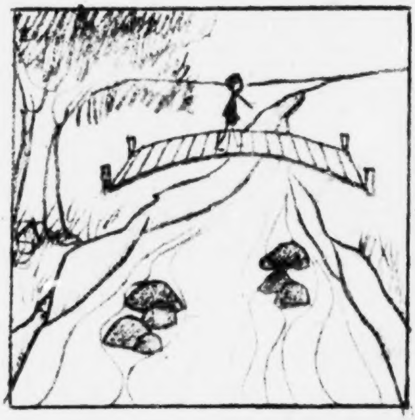

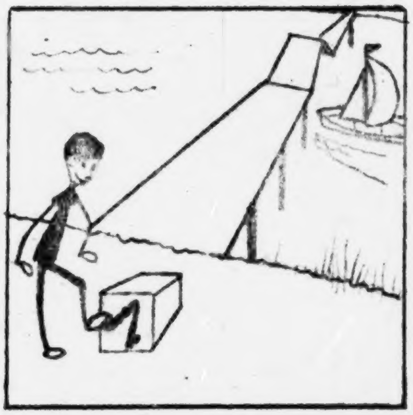

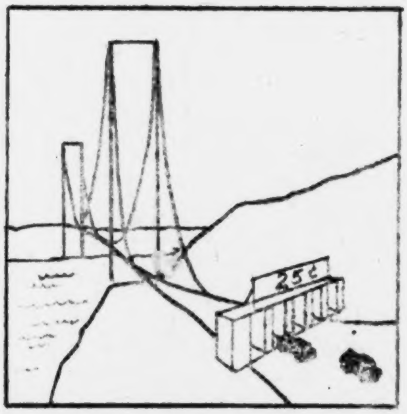
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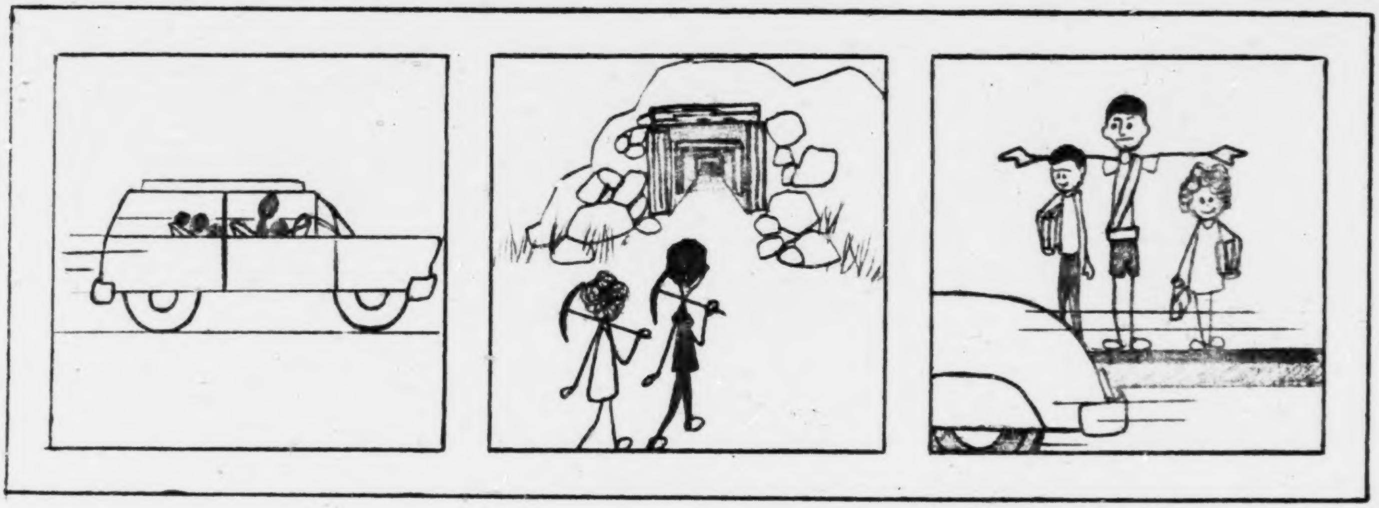

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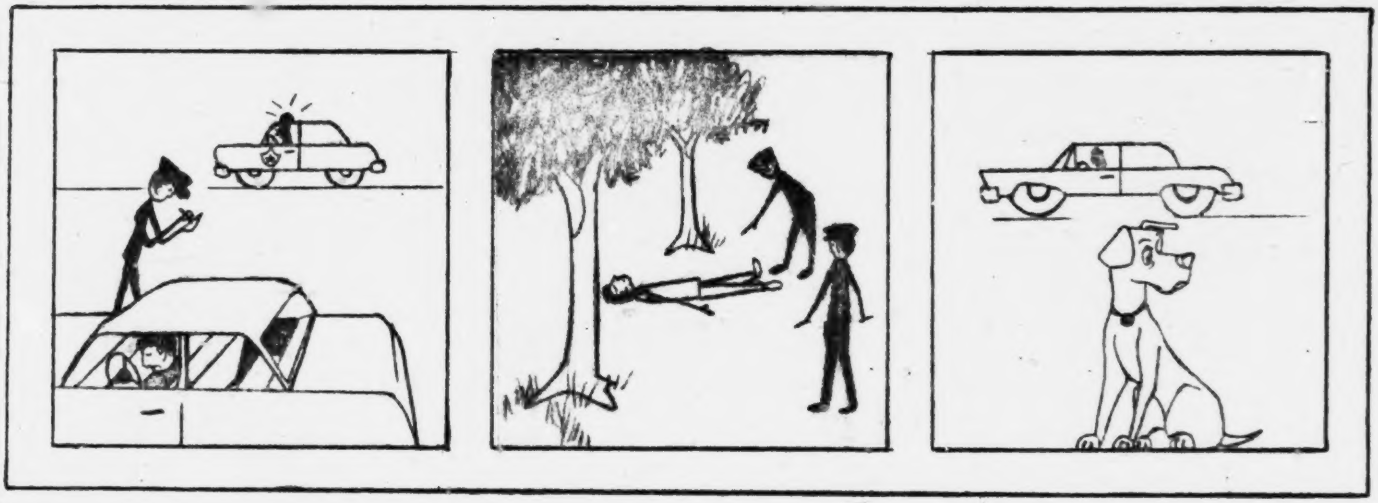

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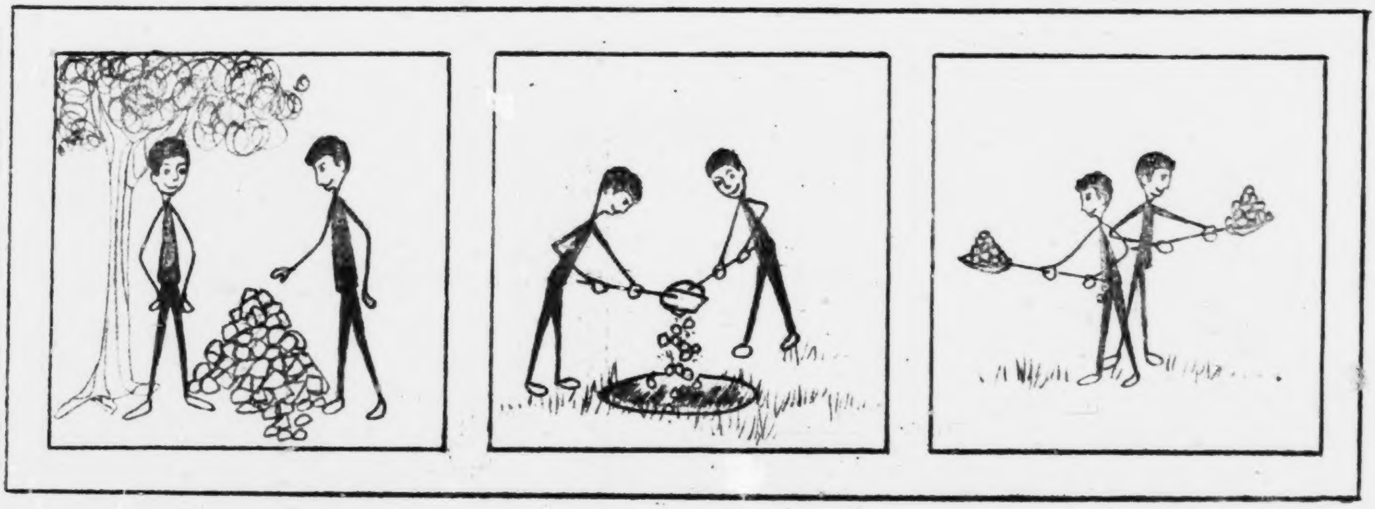

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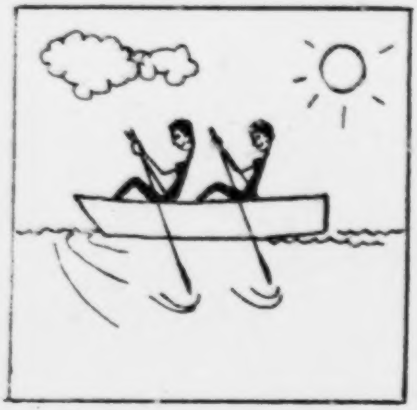

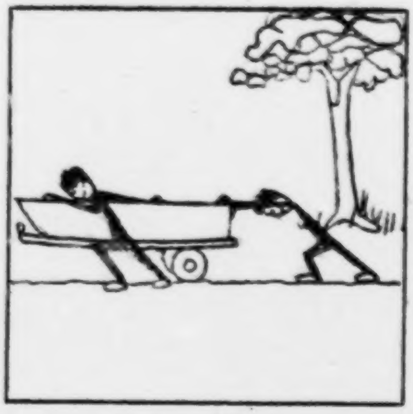

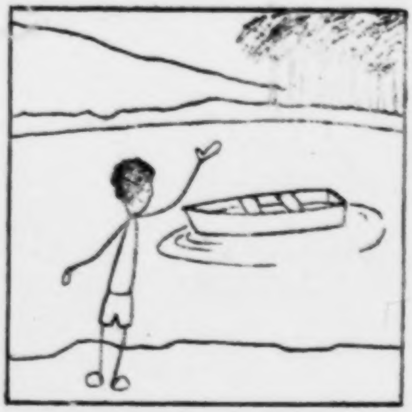

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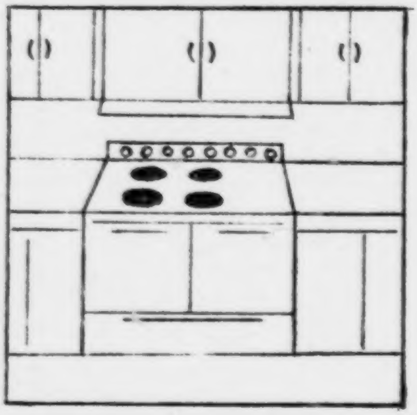

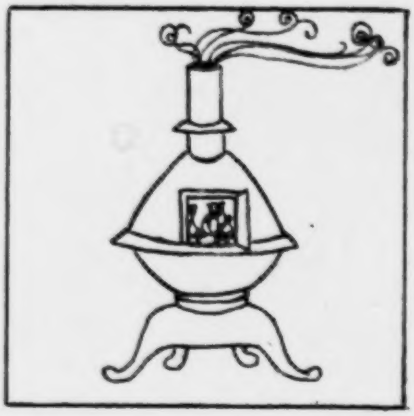

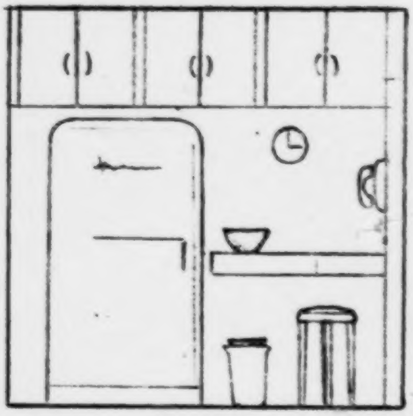

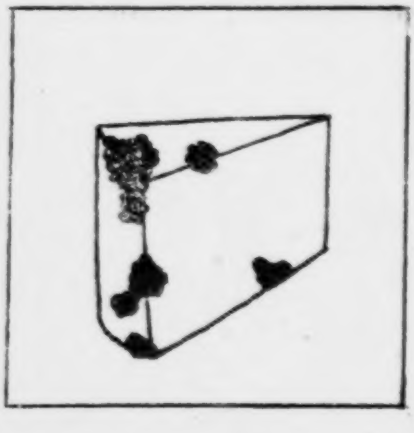

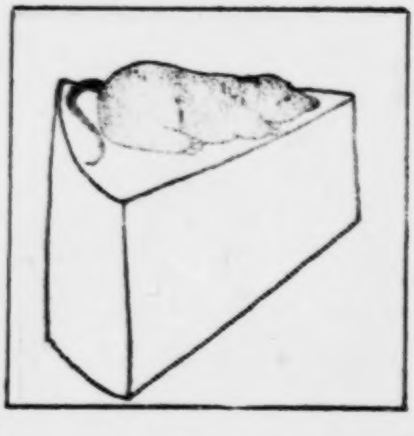

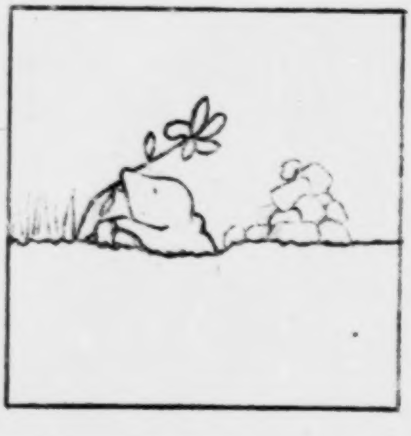

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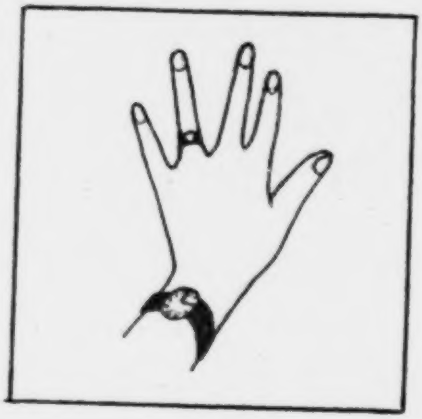

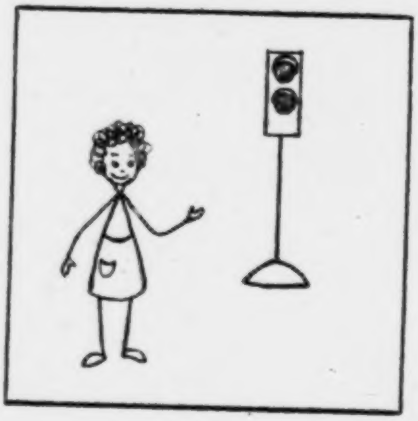

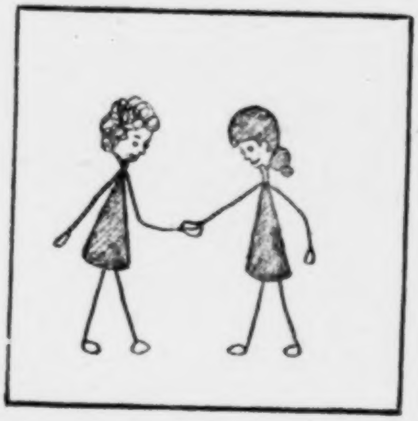

Appendix D

THE PHONOLOGICAL SPELLING INVENTORY*

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Teacher's Copy

Design of the Instrument

The Phonological Spelling Inventory is an assessment instrument designed to determine whether or not differences in spelling arise because of a child's use of a non-standard dialect rather than the so-called prestige dialect, i.e., the standard English dialect used by national network newscasters. Each spelling inventory is designed with enough contextual clues in the individual sentence item for the child to correctly determine the word to be spelled. Thus, one would assume that if the child misspelled the word, the cause would be either that he was simply unable to spell the word in question or that dialect differences resulted in a spelling different from that of the accepted spelling.

The Phonological Spelling Inventory , designed for early assessment of the child's difficulties with spelling , has four separate forms, each containing 25 items.

One should also note the rationale behind testing or not testing certain words on any given form of the inventory. If we take the words ten and tent, for example, these should not be assessed on the same inventory. The reasoning behind this statement is that a child who habitually dropped the t ending and spelled both words as ten would possibly become confused and wonder why the teacher was asking him to spell the same word twice during the course of a single spelling inventory.

Directions for Administering the Inventory

The Phonological Spelling Inventory is to be administered in the same way that the classroom teacher administers any other spelling inventory:

(1) The word to be spelled is read in a clear, distinct tone, i.e., avoiding over-pronunciation of the individual word.
(2) The sentence containing the word is read.
(3) The word to be spelled is repeated in a clear, distinct tone -- again avoiding over-pronunciation of the individual word.

In other words, the Phonological Spelling Inventory is designed as an early assessment and evaluation instrument of the child's possible phonological spelling problems.

For example, item #13 of Form A would be administered as follows:

(1) The word wind is read aloud (without over-pronuncation).
(2) The sentence The wind is blowing through the trees is read aloud.
(3) The word wind is repeated -- again without over-pronuncation.

The entire inventory is, of course, administered in the same way.

Master List of the 100 Words Used in the Phonological Spelling Inventory

(arranged in accordance with the type of phonological problem being assessed)

1. ten
2. tent

3. win
4. wind

5. all
6. oil

7. few
8. fuel

9. fine
10. find
11. mine
12. mind

13. stew
14. stool
15. two
16. tool

17. row*
18. road
19. row*
20. roll
21. hoe
22. hole
23. whole
24. hold

25. hose
26. holes

27. bow
28. bowl

29. foe
30. four
31. mow
32. more

33. goal
34. gold
35. coal
36. cold
37. mole
38. mold
39. sole
40. sold
41. toll
42. told
43. toe

44. bath
45. half
46. mouth
47. south

48. this
49. that
50. these
51. those
52. them
53. their

54. bathe
55. cave

56. they
57. day

58. masks
59. tasks

60. poor
61. pour

62. fought
63. fault

64. tests
65. fists

66. hep
67. help

68. asked

69. didn't
70. dent

71. couldn't
72. shouldn't

73. he's
74. she's
75. bees
76. fleas

77. king
78. kind
79. sing
80. sin

81. run
82. runs

83. laugh
84. laughs
85. laughed
86. walk
87. walks
88. walked
89. look
90. looks
91. looked
92. cook
93. cooks
94. cooked
95. drop
96. drops
97. dropped
98. stop
99. stops
100. stopped

*The word row has been used on two separate forms as a control word.

THE PHONOLOGICAL SPELLING INVENTORY

Form A*

1.	ten	There are ten children in the music class.	ten
2.	fine	The driver had to pay a fine.	fine
3.	two	The children had two cats.	two
4.	row	The children all stood in a row.	row
5.	foe	The soldier was a friend, not a foe.	foe
6.	this	The teacher gave the boy this piece of paper.	this
7.	bathe	Birds like to bathe in the morning.	bathe
8.	masks	Everyone wears different masks each Halloween.	masks
9.	didn't	The driver didn't see the light turn red.	didn't
10.	he's	Tomorrow he's going to the store.	he's
11.	laugh	Our friends laugh all the time.	laugh
12.	looked	Everybody looked up at the sky.	looked
13.	wind	The wind is blowing through the trees.	wind
14.	stool	The boy sat on a stool.	stool
15.	hole	The dog dug a hole in the yard.	hole
16.	bowl	The dog had a large bowl of food.	bowl
17.	gold	Their uncle has a gold watch.	gold
18.	told	The teacher told the children a story.	told
19.	that	Everyone is drawing a picture of that tree.	that
20.	help	The girl always tries to help her mother.	help
21.	shouldn't	You shouldn't make fun of people.	shouldn't
22.	kind	Their aunt is always very kind.	kind
23.	runs	The boy always runs to school.	runs
24.	walk	Sometimes the children walk to school.	walk
25.	stopped	The family stopped in front of the store window.	stopped

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THE PHONOLOGICAL SPELLING INVENTORY

Form B*

1.	win	Our team is going to win the game.	win
2.	stew	The family often had beef stew for dinner.	stew
3.	hoe	The man used a hoe to dig in the garden.	hoe
4.	bow	The girl has a bow in her hair.	bow
5.	goal	Our team scored a goal.	goal
6.	toll	The toll on the bridge is fifty cents.	toll
7.	toe	The player kicked the ball with his toe.	toe
8.	hep	The boy is hep to new music.	hep
9.	couldn't	The girls couldn't go to the party.	couldn't
10.	king	People treat him like a king.	king
11.	run	Horses sometimes run as fast as they can.	run
12.	laughed	The boy laughed at the funny story.	laughed
13.	tent	The soldiers slept in a tent.	tent
14.	find	The girl is trying to find her brother.	find
15.	tool	The man used a tool to fix the sink.	tool
16.	road	The girl ran across the road.	road
17.	four	The cat has four kittens.	four
18.	them	The neighbors asked them to come to dinner.	them
19.	cave	The children were playing in a cave.	cave
20.	tasks	The workmen still have several tasks to finish.	tasks
21.	dent	That car has a dent in the fender.	dent
22.	bees	The bees were flying around the flowers.	bees
23.	walks	Our neighbor walks to work every morning.	walks
24.	drop	That girl seems to drop everything she touches.	drop
25.	dropped	The children dropped their books on the floor.	dropped

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THE PHONOLOGICAL SPELLING INVENTORY

Form C*

1.	all	All the children are happy.	all
2.	few	We need a few more children for the team.	few
3.	whole	Their mother baked a whole plate of cookies.	whole
4.	mow	The boy had to mow the lawn.	mow
5.	coal	The factory burns coal in the furnace.	coal
6.	sole	The girl's shoe had a red sole.	sole
7.	bath	The children gave their dog a bath.	bath
8.	these	The librarian read these books to the class.	these
9.	fought	Many people fought in the war.	fought
10.	asked	The teacher asked everyone to write his name.	asked
11.	laughs	Sometimes the girl laughs at her little kitten.	laughs
12.	look	The children look carefully at everything they see.	look
13.	mind	Everyone should always mind his mother.	mind
14.	roll	The car began to roll down the hill.	roll
15.	holes	The workman cut some holes in the wall.	holes
16.	day	It was a very warm day.	day
17.	mold	The cheese has some mold on it.	mold
18.	south	The family is visiting in the south.	south
19.	she's	Everyone says she's a very nice girl.	she's
20.	pour	The firemen had to pour water on the fire.	pour
21.	fists	The prize-fighter raised his fists.	fists
22.	sin	The reverend said it was a sin to tell a lie.	sin
23.	cook	The children cook dinner for their grandmother.	cook
24.	drops	The boy always drops his ruler.	drops
25.	stop	You should always stop before crossing the street.	stop

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THE PHONOLOGICAL SPELLING INVENTORY

Form D*

1.	mine	My friend's drawing is better than mine.	mine
2.	row	The boys know how to row a boat.	row
3.	hose	The man used a hose to water the grass.	hose
4.	they	They all wanted new toys.	they
5.	mole	The man has a mole on his arm.	mole
6.	mouth	The mouse opened his mouth.	mouth
7.	those	Somebody found those pennies on the playground.	those
8.	poor	Their friend's family is very poor.	poor
9.	tests	Last month the teacher gave three tests.	tests
10.	sing	The children like to sing.	sing
11.	looks	The dog always looks out the window.	looks
12.	cooked	His mother cooked a special dinner for his birthday.	cooked
13.	oil	The car needs some oil.	oil
14.	fuel	The truck is carrying some fuel.	fuel
15.	hold	The teacher let the children hold a rabbit.	hold
16.	more	The dog wants more food.	more
17.	cold	In the mountains the weather is often very cold.	cold
18.	sold	The boy sold his bike.	sold
19.	half	The girl ate half of the candy bar.	half
20.	their	The children had their books with them.	their
21.	fault	What happened was not our fault.	fault
22.	fleas	The dog has fleas.	fleas
23.	walked	The family walked down the street.	walked
24.	cooks	Their mother cooks hot cereal every morning.	cooks
25.	stops	That car stops in the same place each day.	stops

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Appendix D-1

LINGUISTIC ANALYSIS -- Form A*

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*The following analysis was developed by Judith Kujawa, a graduate student in linguistics at the University of California in Berkeley.

LINGUISTIC ANALYSIS OF SPELLING INVENTORY

Form A

1. ten [tɛ́n]

The most common misspelling was "tin." There are some dialects of English in which the distinction between [I] "tin" and [ɛ] "ten" is lost before a final nasal.

2. fine [fáyn] [fáin]

There were a few instances of loss of final n or replacement of n with d. The primary phonetic difference between [n] and [d] is nasality.

3. two [túw]

The most common misspelling was "tow." Phonetically "two" is [tuw]; i.e., the labial semi-vowel [w] is indeed the last phonetic segment of the word, as many children recorded. The o of "tow" and other misspellings suggest some familiarity with the correct orthographic spelling.

4. row [rów]

Several different spelling conventions were used to record what is traditionally called a "long vowel" (in English phonetically a diphthong [ow]): double vowel roo, roow; "silent e" roe, rowe, wroe (the w may represent the final lip-rounding, or wr may be used as the orthographic symbol for [r], as in write).

Another fairly common occurrence was replacement of w with l: roll, role. Both are phonetically [ról]; i.e., they differ by only one phonetic segment from [row]. Furthermore, these two segments, [l] and [w], are very similar phonetically; in fact, when these two segments are juxtaposed, a vowel is often inserted to facilitate pronunciation--e.g., "bowl" [bol]→ [bówəl]--thereby adding an extra syllable. Within the sound system of English, the so-called "liquids," [l] and [r], pattern much like the semi-vowels [w] and [y]; i.e., both the liquids and the semi-vowels can form initial clusters with most of the consonant sounds of English. The frequent replacement of one by the other is not without motivation--phonetic as well as phonological. There were several instances of a final d--possibly a hypercorrection. (See discussion under No. 5)

5. *foe* [fów]

There was frequent use of final "silent e" to indicate vowel length (actually diphthongization)--e.g., f*owe*, f*oe*. Since No. 4 and No. 5 rhyme, it is obvious that many children used the former as a model for the latter. There were, however, only a few instances of *l* replacing *w*: f*oll*, f*oal*, This is probably an indication that both "foe" and "foal" are unfamiliar lexical items. The child has no way of knowing whether f*oll* is any more a "real word" than f*oe*. The most common misspelling was to replace phonetic [w] with *r*--a hypercorrection; i.e., the child assumed he was supposed to have heard an [r]. So he spelled the more familiar lexical items: f*or*, f*our*, f*ore*. One occurrence, fo*a*, may be an attempt to phonetically represent a dialect pronunciation of *four* [fówə].

6. *this* [ðís]

There was general confusion over use of a complex symbol for a single sound. The child may be familiar with the complex orthographic symbols *th* and *sh* but unable to consistently equate them with the sounds [ð or θ] and [š], respectively. These sounds and *s* are all spirants, and this phonetic similarity along with the confusion of complex symbols may account for the relatively high freqnancy of metathesis: (examples: t*ihs*, t*ish*, t*hsi*).

7. *bathe* [béyð]

The most common misspelling was the omission of the final "silent e." Historically, this way of deriving verbs from nouns was a more productive process than it is in present-day English. The process involved adding a suffix to the noun (which is retained in modern English only as final *e*), resulting in voicing of the final consonant: half [hæ*f*], halve [hæ*v*], house [haw*s*], house [haw*z*], bath [bæ*θ*], bathe [bey*ð*]. The phonetic difference of the vowels ([ey] bathe and [æ] bath) may be responsible for some of the misspellings of the vowel: *ai*, *ae*. For the most part, however, the children seemed to be aware of the morphological relation between *bath* and *bathe*, and the more familiar *bath* was written. The other frequent misspelling replaced *th* with *v*. In nonstandard English, syllable-final voiceless *th* [θ] is replaced by an *f*-like sound, and syllable-final voiced *th* [ð] is replaced by a *v*-like sound. ([f] is a voiceless labio-dental sound; [v] is a voiced labio-dental sound): [θ] and [ð] (inter-dental) are made quite close to [f] and [v] (labio-dental). Both pairs are spirants; i.e., they are articulated in the same manner. Air is expelled through a constricted opening causing some turbulence; compare the "stop" consonants [p, b, t, d, k, g] for which a complete closure is required.

8. *masks* [mǽsks]

The final consonant cluster was reduced in various ways: [sks] ⟶ sss, ss, s; ks, x [ks]; sk. In some cases *t* replaced *k*--e.g., mas*t*. This *k-t* alternation does not appear to be entirely random (see discussion under No. 12). In this particular example, it may be a case of assimilation; i.e., the tongue is in the same place in the mouth for the production of [t] as it is for [s]. Often an apostrophe was used to separate the noun from the plural ending. Sometimes an *e* was inserted--*maskes*; the *e* might be functioning either as a morpheme boundary, between the noun and the plural, or as a non-phonetic, purely orthographic entity. [sks] is an awkward cluster and takes some time to pronounce; the *e* may represent the length of two syllables. Also, the plural of nouns which end in *s*, *ch*, *sh* is formed by adding *es*, not just *s*. [sk] may be felt to be that type of sound which requires an *es* plural. Probably those children who wrote *ss* or *sss* would pronounce it *ses*; i.e., the cluster of the noun was simplified, sk ⟶ s, and the *-es* plural was added according to the rule. There was a fairly large number of misspellings with *c*; no doubt in most cases *c* stands for [k] (i.e., *c* = [k] or *ck* = [k]): m*icsse*, m*acs*, m*asc*. Others are less obvious: *mackss*, *mcks*, *macscs*, m*acks*, m*athcss*. There was some metathesis, to be expected with such complex cluster: *smasss*, m*aksk*.

9. *didn't* [dɪ́dənt] [dɪ́nt]

If spelled as if it were a monosyllabic word, one would expect something like *dint* which did occur several times. But d*idt* occurred just as frequently. This may represent [dint], but the knowledge that the word *did* underlies even this contracted form *dint* may be responsible for d*idt*. There were many cases in which *n* was lost before *d* or *t* so that another monosyllabic form was d*it* or *dt*.

If spelled as a disyllabic word, *i* or *e* was often inserted: *dident*, d*idiet* (indicating loss of *n*). D*idin* is phonetic for colloquial speech; i.e., it does not represent a dialect pronunciation.

10. *he's* [híyz]

In a few cases, double *s* was used. In transcribing another language phonetically, it is common for native speakers of English to confuse long or diphthongized vowels with long (i.e., double consonants), h*ess*. The vowel in "he's" is phonetically [iy]; occasionally it was spelled *i*, suggesting phonetic [I]. The articulatory distance between [i] and [I] is minimal. To the English ear the distinction is maximized by diphthongizing the [i]--i.e., [iy]. Many non-native speakers of English (e.g., native speakers of Spanish) cannot hear the distinction between [i] and [I] because in their native languages [i] may be pure (i.e., *not* dipthongized) and may therefore sound very much like [I], which is written *i*. There may be general confusion (grammatical, not necessarily phonetic) between the items *his* and *he's*.

11. *laugh* [lǽf]

By far the most common misspelling substituted *f* for *gh*. There must have been some awareness that the [f]-sound is sometimes represented by a complex graph because there occurred such forms as la*ush*, la*igth*, la*fgh*, la*fh*. In a few cases, *th* was used, possibly reflecting a confusion of symbols or more probably a hypercorrection: syllable-final *f* heard as an [f] but thought to be [θ]--i.e., a *th*. (see discussion under No. 7.) The most commonly used vowel was *a*. *ae* is phonetic; but the letter *a* can stand for the [æ] sound: h*a*t.

12. *looked* [lʊ́kt]

t was very often used for the past ending, spelled *ed*. An apostrophe frequently separated the verb from the tense ending (spelled either *d* or *t*); in these cases, the *e* was usually not used.

There appears to be confusion in oral use of the voiceless stops [p, t, k] and this results in similar confusion in spelling. (This "confusion" may be rule-governed, i.e., regular.) *lett* is an example of confusion between *t* and *k*; *loot* may be the result of final consonant cluster simplification.

13. *wind* [wɪ́nd]

The most common misspelling used *e* [ɛ] for *i* [ɪ]. (see discussion under No. 1 concerning loss of distinction between [ɛ] and [ɪ] before nasals.) There were a few examples of cluster simplification: in most cases, nd → n. This is not necessarily dialect but rather a common phenomenon when talking at a conversational speed. It is especially likely to happen if the initial sound of the following word is made in the same place in the mouth as the *n*--i.e., dental.

14. *stool* [stúl] or [stúwəl]

There were some misspellings suggesting a disyllabic pronunciation: st*ooa*, st*wel*. (see discussion under No. 4.) Forms with *w* or *u* are attempts to represent the word phonetically. There were some instances of initial cluster simplification: st → s and st → t.

15. *hole* [hól]

In several cases, a double vowel was used to represent the "long" (phonetically, tense) vowel: e.g., h*oo*l; sometimes a double *ll*: ho*ll*, h*olle* which also occurred once for No. 14 with st*oll*. Some forms suggest a disyllabic pronunciation: h*owl*, h*aol*, *owel*. In all cases the word was spelled with the *l* somewhere in the form, and in one case a *d* was added: ho*ld*, possibly a hypercorrection.

16. *bowl* [ból] or [bówəl]

Since No. 16 rhymes with No. 15, there were many analogical spellings: b*ole*, b*ol*, b*ool*, and b*oll*. In one case the *l* was replaced by *w*: bo*w*. There were some forms which might be interpreted as representing disyllabic pronunciation: b*aol*, bo*ul*, b*oolw*, bo*wle*. (The last two examples may be spelling confusions [double vowel and "silent e" to represent the "long" vowel] and not represent disyllabic pronunciation.) In a couple of cases *d* was added: b*old*, bo*weled*.

17/18. *gold* [góld]
told [tóld]

The most frequent misspelling replaced *l* with *w*. (This *may* be interpreted as final cluster simplification, ld → d, and then dipthongization of the tense vowel, o → ow.) There were several ways to represent this "long"(diphthongized) vowel: double vowel *good*, *tood*; "silent e" *gode*, *tode*; phonetically[gowd, towd]. Cluster simplification resulting in loss of final *d* was less common: *gol*, *gole*, *tol*, *tole*, *toll*. This simplification is probably not dialect but "conversational style"-- the *d*, a dental sound, is often dropped in normal speech if the initial sound of the following word begins with a dental consonant.

Forms with a *u* or *w* may indicate disyllabic pronunciation go*weled* or the lip-rounding which is part of the [o]-sound gu*od*, go*wld*. There was one instance of *k* for *t*: ko*ode* for *told*. (see discussion under No. 8 and No. 12.)

19. *that* [ðǽt]

Sometimes *t* was used for *th* and *e* for *a*--orthographic *e* often stands for [ɛ] which is phonetically close to [æ], written *a*.

20. *help* [hɛ́lp]

There was some final cluster simplification, lp → p: e.g., *hep*. Unlike No. 17 and No. 18, here the vowel is not diphthongized because it is not a tense vowel [ɛ]. The variations on the vowel--*ae*, a,--may be phonetic approximation of a dialect pronunciation [hæp or hælp]. In any event, the correct *e*, phonetically [ɛ], is close to [æ], which is written *a*. There was only one instance of loss of *p*: he*ll*. Again, the nature of the following consonant may obscure the final *p*; *p* may be an "unreleased stop."

21. shouldn't [šʊ́dənt] [šʊ́nt]

As a disyllabic word, a vowel (usually i or e) was inserted: sholdint. In a few cases an e was also inserted before the final consonant: shodened, suggesting that perhaps the word was interpreted as being a verb in the past tense ed (compare the form toled as an example of overgeneralization of the past marker ed). Usually the vowel was rendered o or u (which is closer to the phonetic representation). Many of the misspellings indicated monosyllabic pronunciation: shunt. There was one example of loss of n before final t (shoud't) and a few examples of loss of final t.

22. kind [káynd] [káind]

A lot of confusion occurred with the use of c for [k]. There were some cases of "silent e" for the "long" (diphthongized vowel (kined, kinde) and loss of nasal n before d (cide, cood, cid, kid. There were a few instances of loss of final d (kin, kine) and one case of t for k (tind). (see discussion under No. 8, No. 12, and No. 18.)

23. runs [rʌ́nz]

There were many instances of metathesis (possible due to similarity of letters u and n): rnu, rnus, and rnns. The lack of a final s may be explained grammatically; i.e., the child's grammar may not have a m rker for the third singular present form of the verb. (see No. 11 of Form B.)

24. walk [wɔ́k]

Many forms occurred with o and no l, which is close to a phonetic representation. Wawk: the w no doubt represents the lip-rounding of the vowel. The l, because it is not pronounced, was occassionally metathesized: wlak.

25. stopped [stápt]

The final t found in many of the forms is correct phonetically. However, it was often dropped which--as mentioned previously--is not unusual in normal speech. Final voiceless stops may be "unreleased"; note also that this final t is preceded by another voiceless stop consonant,p. The fact that both the initial and the final consonant clusters contain t may be responsible for the number of cases demonstrating metathesis: sotp, spot.

Appendix D-2

LINGUISTIC ANALYSIS -- Form B*

*The following analysis was developed by Judith Kujawa, a graduate student in linguistics at the University of California in Berkeley.

LINGUISTIC ANALYSIS OF SPELLING INVENTORY

Form B

1. win [wÍn]

For a possible explanation of the large number of occurrences of e, see discussion under No. 1 of Form A. The phonetic distinction between voiceless [w̥], spelled wh, and voiced [w] is disappearing in present-day English; i.e., those words spelled with a wh are pronounced as if they were written with a plain w. In other words, wh, like gh, ph, etc., is becoming an arbitrary spelling convention.

2. stew [stúw]

Any forms with w or u are attempts to represent the lip-rounding of the vowel. The frequent use of o is inexplicable, except for stoo, as in food. There were several cases in which the initial cluster was broken up: setw, setu.

3. hoe [hów]

The most common misspelling, how, is phonetic; those forms with a u reflect the lip-rounding of the vowel and following semi-vowel. There were several cases in which l replaced [w]: hole, hol, holw. (see discussion of the similarity between [l] and [w] under No. 4 of Form A.) This misspelling might indicate that the child does not distinguish [l] and [w] in final position. One form, hod, may be a hypercorrection with the child thinking he should have heard hold. (see discussion of ld under No. 17/18 of Form A.)

4. bow [bów]

The misspelling boe is based on the previous word hoe. Bow or any form with u is phonetic. There were several ways of indicating that the vowel was "long" (i.e.,diphthongized): final "silent e"bowe, boe, boew; double vowel boo; other words with the same "long" vowel voa, boao--cf. road. There were a few cases where l replaced [w]: buol.

5/6. goal [gól] [gówəl]
toll [tól] [tówəl]

The "length" (tenseness) of the vowel was noted in various ways: "silent e ": gole, tole; double vowel or consonant: gool, goll (compare roll) tool; toal is based on analogy to goal. In many forms, the l was replaced by [w]: goo, goaw, towe, toew--again suggesting, as in No. 3 and No. 4, that some children do not distinguish the difference between [l] and [w] in final position. The forms gold, told, and toed are hypercorrections.

7. *toe* [tów]

To*w* is phonetically correct. Again, double vowel (t*oo*, t*oow*) or "silent e" (t*owe*, t*oue*) were used to represent the "long" (i.e., diphthongized) vowel. There were only one or two examples of adding *l*: t*ol*.

8. *hep* [hɛ́p]

The sound [ɛ], written *e*, and the sound [æ], written *a*, are phonetically very similar; hence, the large number of forms h*ap*. This probably reflects children's pronunciation more closely than does h*ep*. There were some examples of *t* used for *p*: h*et*, h*ot*, h*at*, h*eipht*. (see discussion of confusion between *t* and *k* under No. 8, No. 12, and No. 18 of Form A.) There was a surprising number of misspellings with final *e*.

9. *couldn't* [kʊ́dənt] or [kʊ́nt]

The word was frequently misspelled as if it were monosyllabic: k*int*, cuo*n't*, co*nt*, k*ut*. When spelled as a disyllabic word, a vowel was often inserted--e.g., *cudint*. In both cases there were several forms which demonstrated loss of *n* (dental, nasal) before the final dental stop consonant *t*: k*at*, c*oldet*, cou*det*, c*out*, co*det*; however, there were very few examples of loss of final *t*: c*uden*. Because of the "silent" letters *l* and *o*, some metathesis occurred. There was comparatively little confusion with the use of *c* for [k].

10. *king* [kɪ́ŋ]

Confusion occurred with use of complex graph *ng* for a single sound [ŋ], so that sometimes there would be an *n* for the nasal component of [ŋ], and sometimes a *g* for the velar component of [ŋ].

11. *run* [rʌ́n]

The *o* of r*on* is closer to the phonetic facts than is the correct *u*. A frequent misspelling was r*an*. This may be due to grammatical interference. The past form *ran* was likewise used for No. 23 of Form A (with and without the inflectional ending *s*). Statistically the past form may be more frequent; hence the children may be more familiar with that form of the verb. A lot of metathesis occurred due to the similarity of *n* and *u*: r*nn*, r*nu*.

12. laughed [lǽft]

The most common misspelling was laft, which is phonetically correct if a is taken to represent the sound [æ], which it often does: cat, hat, etc. The use of a complex graph gh for a single sound [f] led to some confusion: lafhg, laphgt, laged, lach. Often the child combined phonetic and traditional spelling: laghted. In a few cases the final phonetic t (i.e., the past tense marker, spelled ed) was dropped. This does not necessarily mean that, in those cases, the grammar lacks a past tense; often the voiceless stop consonants p, t, k are "unreleased" in word final position and therefore may not be distinguished.

13. tent [tέnt]

Recurrent misspellings included using i for e. (see discussion under No. 1 of Form A, and also No 1 of Form B.) The number of forms with i is not as great as that for No. 1 because No. 13 ends in a nasal plus stop consonant, whereas No. 1 ends in just a nasal. The other misspelling involved loss of n before t. (see discussion under No. 9 of Form B.) The loss of n (a dental consonant) before dental consonants t and d (probably more often before d which,like n,is voiced)may result in a slight nasalization of the preceding vowel.

14. find [fáynd, fáind]

The most common misspelling was loss of n: fid, fad, fied. (see No. 13.) There were a few examples of loss of d: fin, fine. Possibly the former misspelling results from a dialect difference, whereas the latter results from the normal conversational speech rate. There was some use of "silent e" to represent the "long"(diphthongized) vowel [ay]: fied, finde; fined may be expained in this way, or it may be the result of overgeneralization of the past tense ed.

15. tool [túl, túwəl]

Some misspellings indicated a disyllabic pronunciation [túwəl]: towal, toal, toell, towle. Forms with w or u are phonetically more correct than those with o: towl, tolw (metathesis of final consonant & [w] for lip-rounding), tule. There were very few examples of the l being lost and/or replaced by w: towe. There was frequent use of "silent e" because the vowel is "long"(diphthongizes) [uw]: tole, tolle.

16. *road* [rówd]

The most persistent misspelling involved the homophone *rode*; this does not necessarily mean that the child was aware of the homophone *rode* as a different word;it may be just the application of the spelling rule utilizing "silent e." There was some metathesis of the vowels--i.e., *raod*; there was also use of double vowels to represent the "long" (diphthongized) vowel [ow]: *rood*. Forms with *u* and *w* indicate an awareness of the lip-rounding: *roud* *rodw*. There was one form, *rord*, which may be just a random misspelling. (see the discussion of the similarity of [w], [l], and [r] under No. 4 of Form A.)

17. *four* [fór]

Frequently children wrote the homophone *for*; as in No. 16, this does not necessarily presuppose knowledge of the homophony, especially in this case since *for* is also the correct phonetic spelling. The word *for* in the context of a sentence loses its stress and hence the quality of its vowel is changed: the spellings *fir*, *fer*, *fure* may be reflections of this vowel change. The forms *foar* and *fowr* may indicate disyllabic pronunciation. In only one case, however, was the *r* entirely lost and/or replaced by [w], written *u*: *foue*.

18. *them* [ðέm]

The most common misspelling used *a* ([æ] as in "bat") for *e* ([ɛ] as in "bet"); these two vowels are very close phonetically, and the *a* [æ] may be a closer approximation to many children's pronunciation of "them." *N* was used in several cases for *m*; obscured again this may be because the last sound of a word is often distorted in normal speech.

19. *cave* [kéyv, kéiv]

There were a few cases of *k* instead of *c*; the former is, of course, phonetically correct; another common occurrence was no final "silent e": *cav*. There was one example, *kath*, of a hypercorrection. (see discussion of what happens to syllable-final th-sounds in nonstandard English under No. 7 of Form A.)

20. *tasks* [tǽsks]

Simplification of final consonant cluster occurred--usually involving loss of final *s* but sometimes loss of *s* before the *k*. In a few cases the *k* was lost: *tass* (the double *s* possibly implying the pronunciation *tases*), *tas*. Often *c* was used; and since the letter can stand for either [s] or [k] and *ck* for [k], the confusion is easily understood: *tascks*, *taschs*, *tacks* (= tasks or taks?), *tascs*, etc. Because of the complexity of the cluster and the two occurrences of *s*, there were some cases of metathesis (*tkck*) although not as many as one might expect. Because of the length of time it takes to pronounce the cluster, some children inserted an extra vowel (tasckes, taskas, tasekes) or lengthened the s (tassks). There may be another factor which resulted in this extra vowel: those nouns which end in [s], [z], [š] as in dish, [č] as in bench, and [ǰ] as in judge form the plural by adding es [əz], not just s. Because the cluster sk is complex and because it already has an s in it, the es may have been used as the plural. There was a significant number of occurrences of t replacing k: tastis, tast, tatske, tasts (also koha, keot). This confusion of t and k does not appear to be entirely random; in this case, it may be due to assimilation--the final stop consonant k assimilating to the initial stop consonant t,or, more likely, assimilation of the k (a velar consonant) to the preceeding and following s (a dental consonant)--i.e., a t (also a dental consonant).

21. dent [dɛ́nt]

(See discussion under No. 13.) Loss of n (dental) before t (dental) is even more common than with tent in Form A: det, dit, dact, dat, dake. (Note k for t and see No. 20.). Forms like dant (in which a = [æ] as in "bat.") may reflect actual pronunciation.

22. bees [bíyz]

The most common misspelling omitted the s plural. Z is phonetically correct but was found in only one form. (As a possible explanation of forms bess and bis see discussion under No. 10 of Form A.)

23. walks [wɔ́ks]

The most common misspelling substituted o for a (the former being closer to phonetic reality) and omitted the l, which is not unexpected since the l is a "silent" letter. There was some use of c or ck for [k] (woks, wocs, wackes) and again t for k (woet, wats). (see discussion under No. 20.) The frequent use of es for s as the marker of the third singular present may be an overgeneralization: cf. do and does. In several cases there was no s at all, possibly implying that children do not make that grammtical distinction.

24. drop [dráp]

The initial cluster dr is perceived and produced by many people as a single sound [ǰ], the initial and final sounds in "judge";* hence, the frequent use of g: gop, gip. The fact that the cluster dr is heard as one sound may also explain the large number of forms with just d, not dr. (Unlike final consonant clusters, which are almost always simplified, initial consonant clusters usually remain intact.) This may also explain why r was metathesized fairly often: dorp. A is phonetically correct and appeared several times.

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*Similarly, the initial cluster tr is perceived and pronounced as [č], the initial and final sounds in "church." [d] is the voiced counterpart of [t], and [ǰ] is the voiced counter part of [č].

25. dropped [drápt]

T is phonetically correct for ed and was used as often or more often than the correct ed; in a couple of cases, both were used: dropted. Sometimes the final [t] (i.e., ed) was dropped; less so, the p. Probably both cases are the result of final cluster simplification; i.e., it involves a phonological, not a grammatical, simplification.

Appendix E

THE LANGUAGE PREFERENCE INVENTORY*

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Teacher's Copy

Design of the Instrument

The Language Preference Inventory is an assessment instrument designed to determine whether the child prefers to use non-standard dialect in the classroom or the so-called prestige dialect, i.e., the standard English dialect used by national network newscasters. A total of 28 deviations from standard English usage have been identified and the Language Preference Inventory contains 30 items corresponding precisely with the attached list of deviations.

The Language Preference Inventory has two matched forms (each with 30 items): Form A and Form B. Approximately 50% of the children in grade three will receive Form A and 50% will receive Form B, with close attention given to the ethnic and socio-economic composition of each classroom so that the results of assessment with either form will be completely comparable.

A problem frequently encountered with children is that they sometimes do what they wish to do and sometimes do what they believe the teacher wishes them to do. Thus, the Language Preference Inventory should be scored as soon as possible; and in the event that any child seems inconsistent in his preference (as assessed by either Form A or Form B), i.e., switching erratically from non-standard to the so-called prestige dialect, the child would then be given (one or two weeks later) the opposite form of the inventory. Since the items on each form are comparable, one would expect the child to make the same choice on any given item two times in succession. In other words, one would expect the child to be consistent in his preference; and if he is not consistent, this would naturally be something the teacher should consider when working with each individual child. However, since both forms are comparable, we would not expect it to be necessary to administer the opposite form of the inventory to more than a minimal number of children. The 30 items assessed by the inventory were selected after examining past research. (See William Labov, Raven McDavid, Walter Loban, and Kenneth Johnson.)

Use of a Pre-Recorded Tape with the Inventory

In administering the Language Preference Inventory (both Form A and Form B), a pre-recorded tape will be used. The recordings for the inventory will be made by a person speaking the prestige dialect as well as the non-standard dialect. This is a very crucial aspect of making the inventory meaningful to the child. In other words, the standard-speaking teacher would not be able to put the correct tone and intonation patterns into the non-standard items on the inventory. And without the correct tone and intonation patterns, the inventory would seem bland and stilted to the dialect-speaking child.

Warm-Up Items

In administering the inventory, the teacher will instruct the child to draw a line from his language preference to the picture directly opposite. Three warm-up items have been provided in Form A and Form B.

Deviations from Standard English Usage

Included in Form A and Form B of the Language Preference Inventory

Omission of s

1. Omission of s to form noun plural
2. Omission of 's to form noun possessive

Pronouns

3. Use of repeated subject
4. Substitution of hisself for himself (Form A)
   Substitution of theirselves for themselves (Form B)

Demonstratives

5. Substitution of them for those
6. Compounding with here
7. Compounding with there

Adjectives

8. Incorrect comparison
9. Use of double comparison
16. Substitution of they for their

Use of double negatives

10. Substitution of no for any (Form A)
    Substitution of nothing for anything (Form B)

Verbs

11. Lack of person-number agreement in present tense of to be
12. Substitution of be for is
13. Lack of person-number agreement in past tense of to be
14. Omission of s from third person singular
15. Omission of to be as auxiliary

Omission of verb endings

17. Omission of ed from past tense
18. Omission of ed from past participle

Omission of to be before predicate nominatives

19. Omission of to be before predicate nominative
20. Omission of to be as contraction before predicate nominative

Omission of to be before predicate adjectives

21. Omission of to be before predicate adjective
22. Omission of to be as contraction before predicate adjective

Complex Forms

23. Use of be done in future perfect tense
24./29. Substitution of past participle for past tense
25. Substitution of have for has
26. Omission of have before been
27. Substitution of done for has
28./30. Substitution of past tense for past participle

Appendix E-1

THE LANGUAGE PREFERENCE INVENTORY

Form A

THE LANGUAGE PREFERENCE INVENTORY*

Form A

Directions for Administering the Inventory

Note to the Teacher: As the sample items are read on the tape, please check to be sure that all children understand how to mark the items on the inventory. As the tape progresses, check to be certain that everyone is on the correct page and the correct item. If necessary, stop the tape and re-orient anyone who is confused.

Taped Instructions

Turn to the first page with pictures on it. I will read two sentences to you, and you will choose the sentence that you like best. You'll see that there is a small circle at the end of each sentence. Draw a line from the sentence that you like best to the picture. Look at example A at the top of the page:

The little fish.
The little dog.

Draw a line from the sentence that you like best to the picture. Now look at example B in the middle of the page:

The fish is not little.
The fish ain't little.

Draw a line from the sentence that you like best to the picture. Now look at example C at the bottom of the page:

The cat runned to the box.
The cat ran to the box.

Draw a line from the sentence that you like best to the picture. Now turn to the next page, the page with the airplane at the top. Some of the sentences will sound almost alike. Remember that you are to choose the sentence that you like best. Listen carefully because I will read the sentences only once. Now let's begin.

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1. The two cat are playing with the string.
   The two cats are playing with the string.

Draw a line from the sentence that you like best to the picture.

2. This is Joe book.
   This is Joe's book.

Draw a line from the sentence that you like best to the picture.

3. The books they are on the table.
   The books are on the table.

Draw a line from the sentence that you like best to the picture.

4. The boy plays by himself.
   The boy plays by hisself.

Draw a line from the sentence that you like best to the picture. Now turn to page two, with the apple at the top. Remember, you're going to draw a line from the sentence that you like best to the picture.

5. The man gave the boys them books.
   The man gave the boys those books.

6. These shoes are big.
   These here shoes are big.

7. That **there** girl's running.
   That girl's running.

8. That boy is the better artist.
   That boy is the more better artist.

Now turn to page three, with the car at the top.

9. Ann is the most prettiest girl.
   Ann is the prettiest girl.

10. The boys don't have no bikes.
    The boys don't have any bikes.

11. The girls is drawing a picture.
    The girls are drawing a picture.

12. Every day the boy is pulling a wagon.
    Every day the boy be pulling a wagon.

Now turn to page four, with the shoe at the top.

13. The girls was running a race.
    The girls were running a race.

14. The boy likes ice cream.
    The boy like ice cream.

15. That cat is walking on the table.
    That cat walking on the table.

16. The children hold their dog.
    The children hold they dog.

Now turn to page five, with the boat at the top.

17. Yesterday the boy walk down the street.
    Yesterday the boy walked down the street.

18. The children have look in the store.
    The children have looked in the store.

19. She is a pretty lady.
    She a pretty lady.

20. That a cute puppy.
    That's a cute puppy.

Now turn to page six, with the chair at the top.

21. The children happy.
    The children are happy.

22. The boy mad.
    The boy's mad.

23. The girl be done skipped down the road.
    The girl will have skipped down the road.

24. The man took the seat.
    The man taken the seat.

Now turn to page seven, with the cup at the top.

25. The boy has been fishing.
    The boy have been fishing.

26. The children been skating.
    The children have been skating.

27. That man has been sitting here for hours.
    That man done been sitting here for hours.

28. The children have gone to the movies.
    The children have went to the movies.

Now turn to page eight, with the bird at the top.

29. The boy did the work.
    The boy done the work.

30. His friends had came for Billy
    His friends had come for Billy.

THE LANGUAGE PREFERENCE INVENTORY*

Form A

NAME________________________ TEACHER______________ DATE____________

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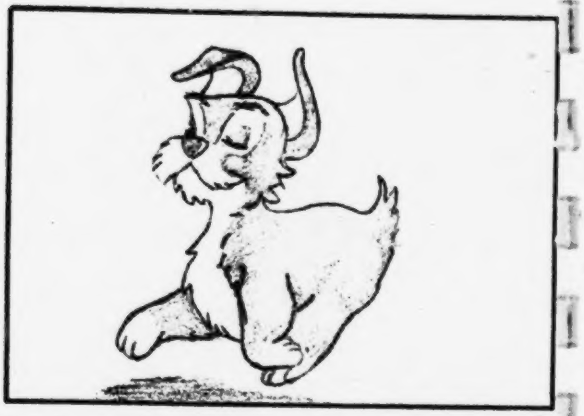
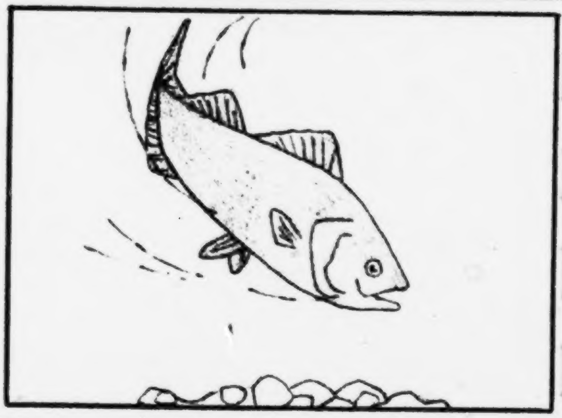
A. The little fish. O

The little dog. O



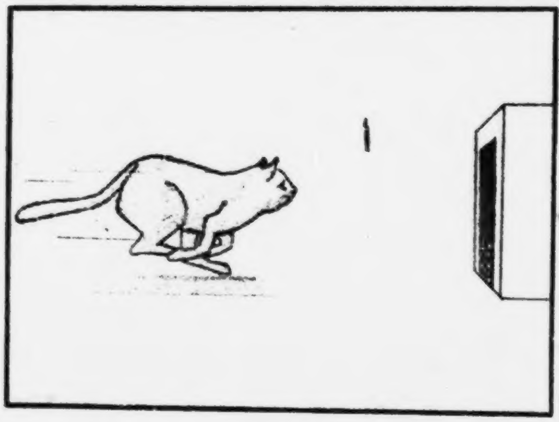
B. The fish is not little. O

The fish ain't little. O



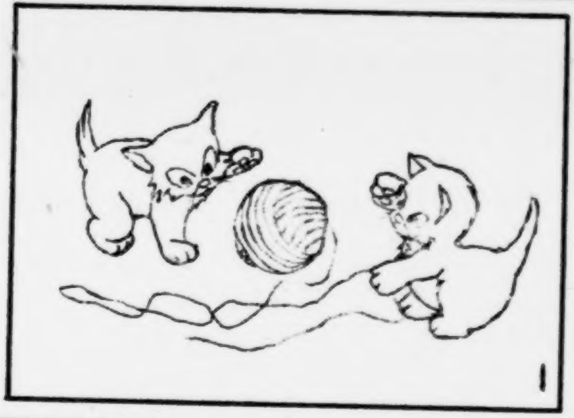
C. The cat runned to the box. O

The cat ran to the box. O



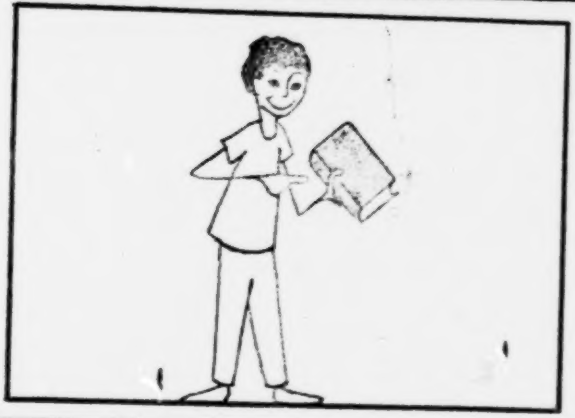
1. The two cat are playing with the string. ○

The two cats are playing with the string. ○



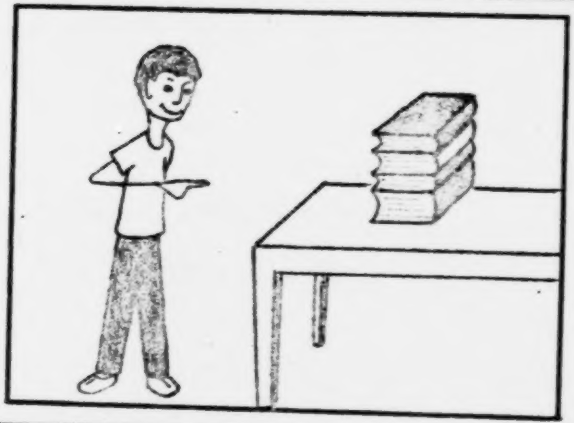
2. This is Joe book. ○

This is Joe's book. ○



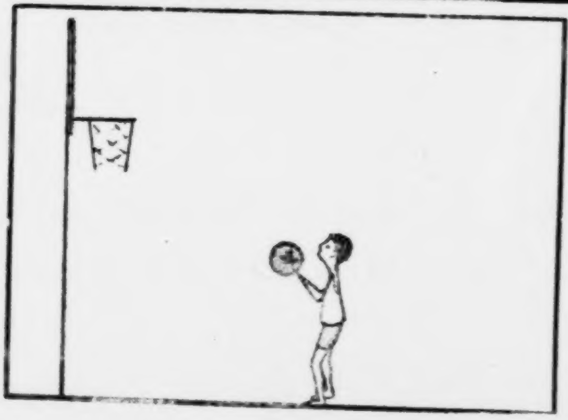
3. The books they are on the table. ○

The books are on the table. ○



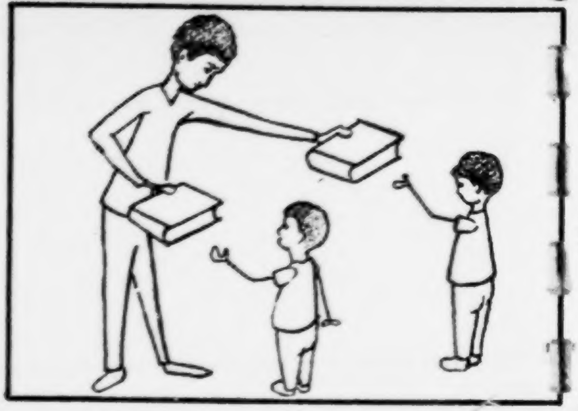
4. The boy plays by himself. ○

The boy plays by hisself. ○



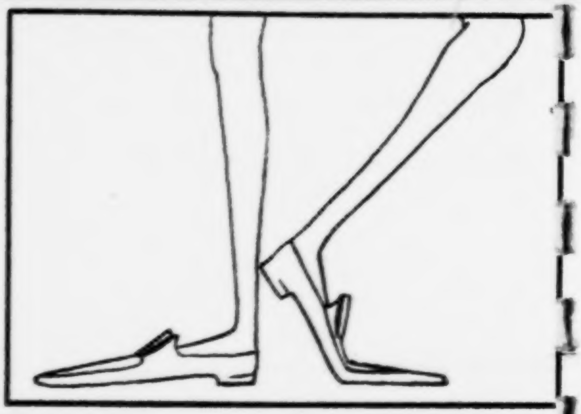
5. The man gave the boys them books. 0

The man gave the boys those books. 0



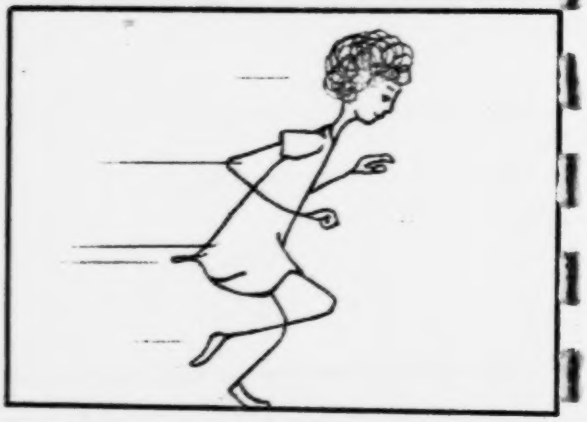
6. These shoes are big. 0

These here shoes are big. 0



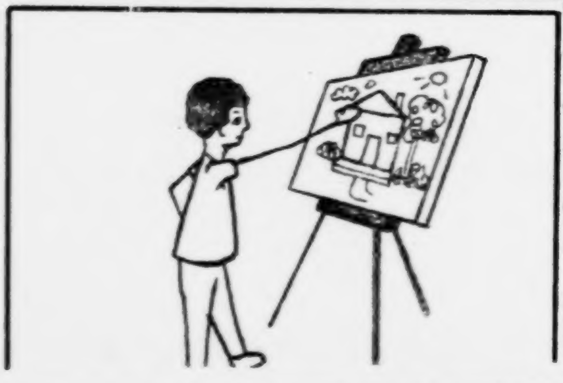
7. That there girl's running. 0

That girl's running. 0



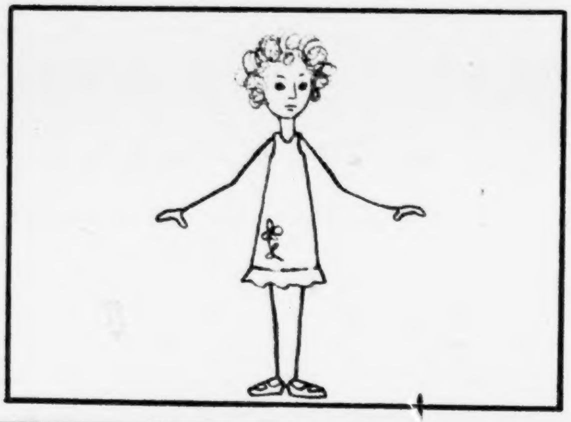
8. That boy is the better artist. 0

That boy is the more better artist. 0



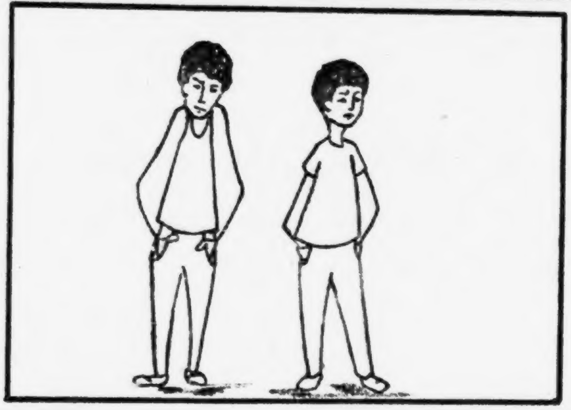
9. Ann is the most prettiest girl. 0

Ann is the prettiest girl. 0



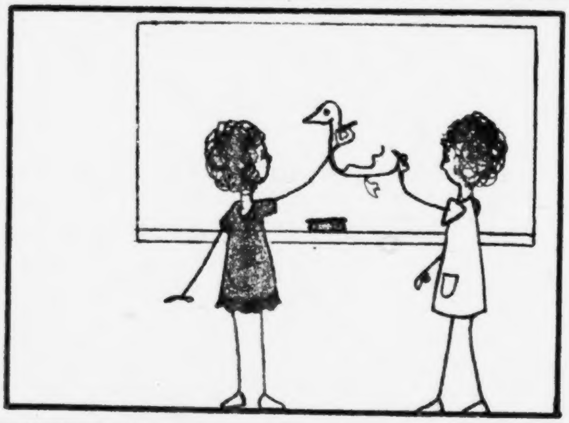
10. The boys don't have no bikes. 0

The boys don't have any bikes. 0



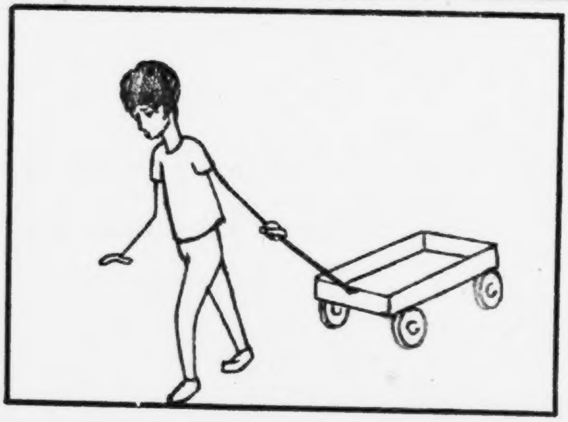
11. The girls is drawing a picture. 0

The girls are drawing a picture. 0



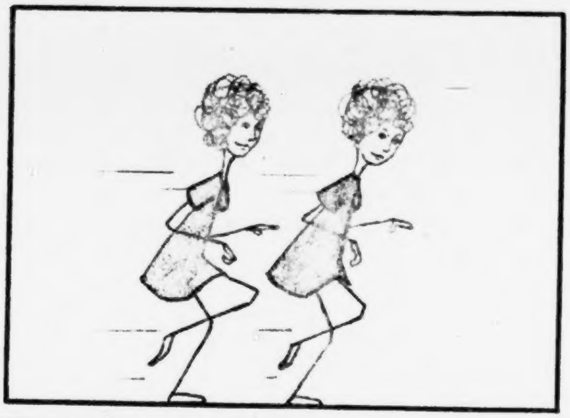
12. Every day the boy is pulling a wagon. 0

Every day the boy be pulling a wagon. 0



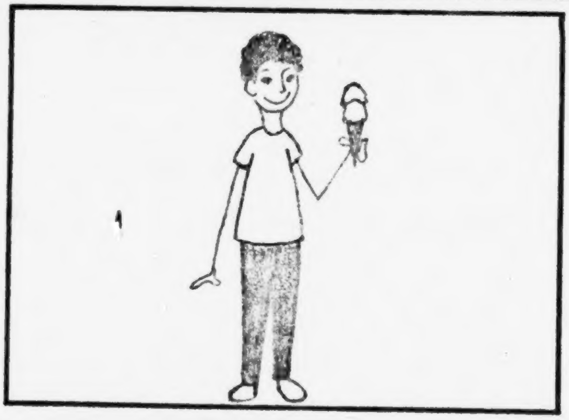
13. The girls was running a race. 0

The girls were running a race. 0



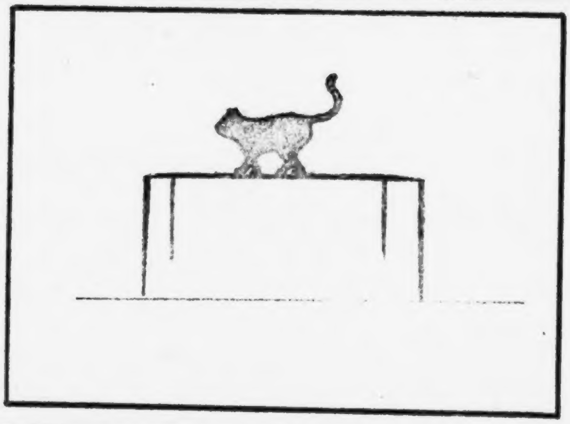
14. The boy likes ice cream. 0

The boy like ice cream. 0



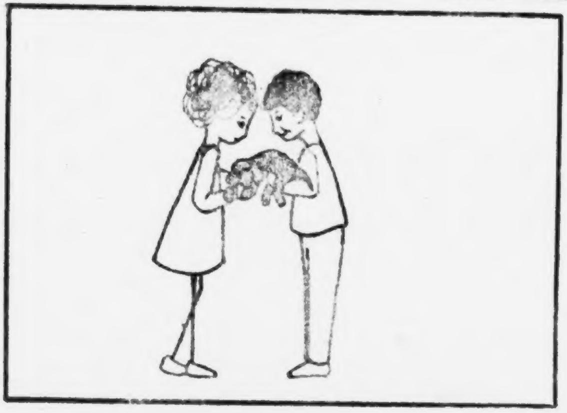
15. That cat is walking on the table. 0

That cat walking on the table. 0



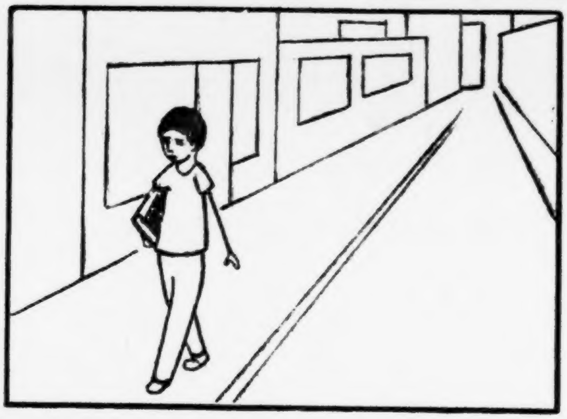
16. The children hold their dog. 0

The children hold they dog. 0



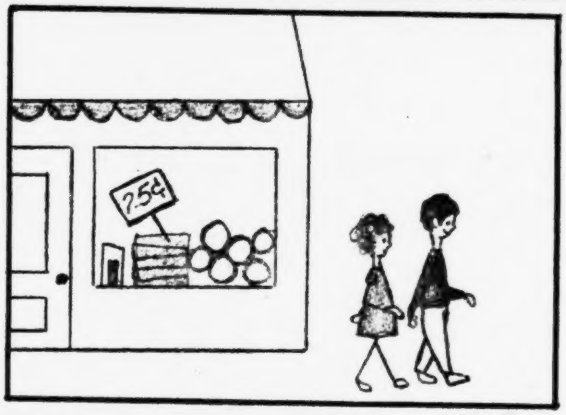
17. Yesterday the boy walk down the street. ○

Yesterday the boy walked down the street. ○



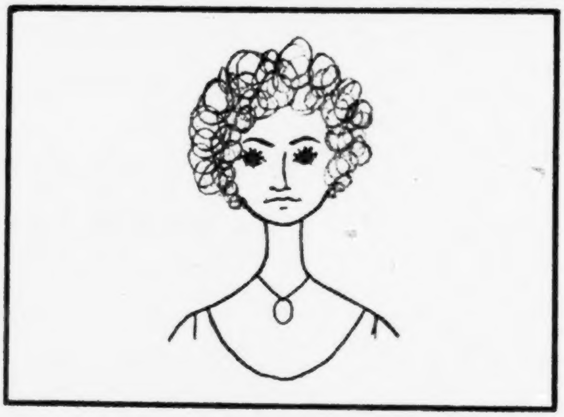
1 . The children have look in the store. ○

The children have looked in the store. ○



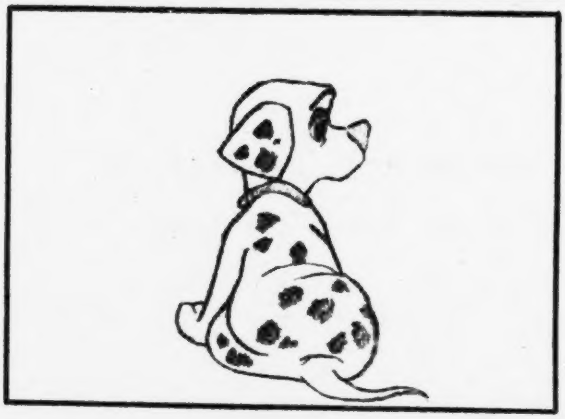
19. She is a pretty lady. ○

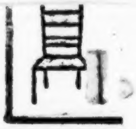
She a pretty lady. ○



2 . That a cute puppy. ○

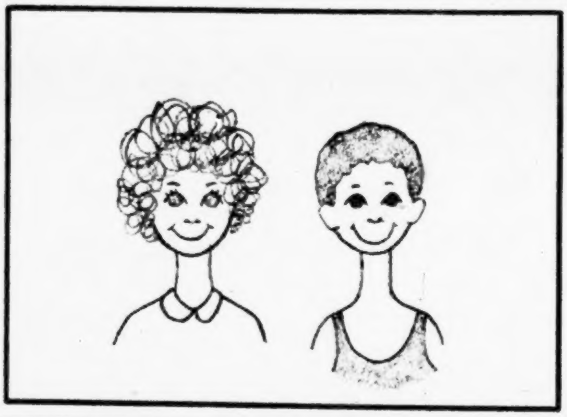
That's a cute puppy. ○





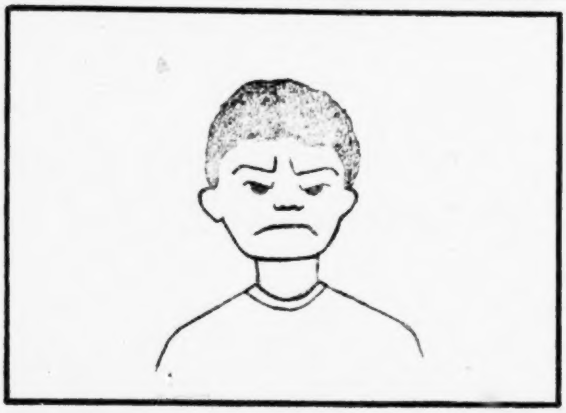
21. The children happy. 0

The children are happy. 0



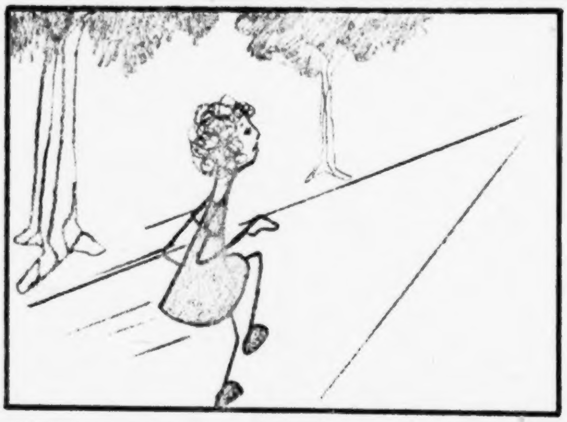
22. The boy mad. 0

The boy's mad. 0



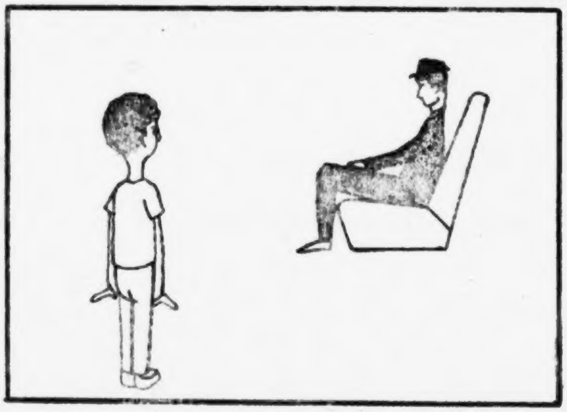
23. The girl be done skipped down the road. 0

The girl will have skipped down the road. 0



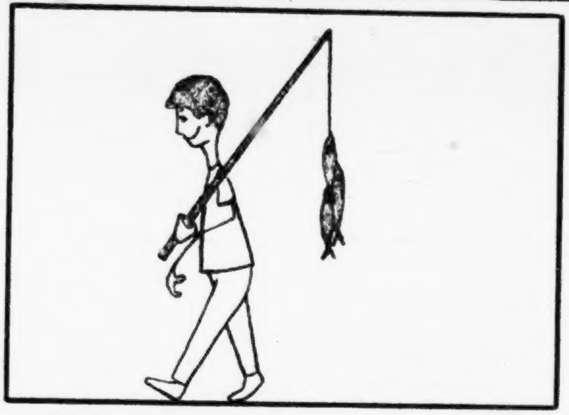
24. The man took the seat. 0

The man taken the seat. 0



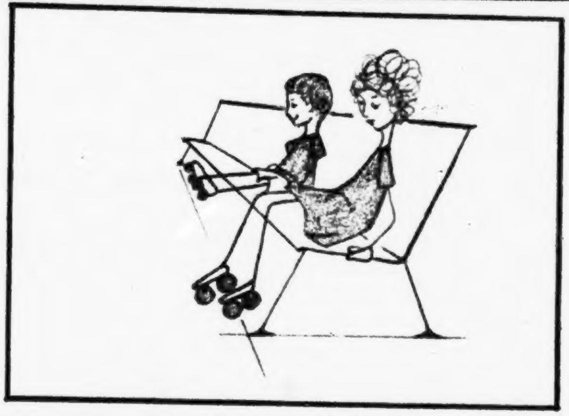
25. The boy has been fishing. 0

The boy have been fishing. 0



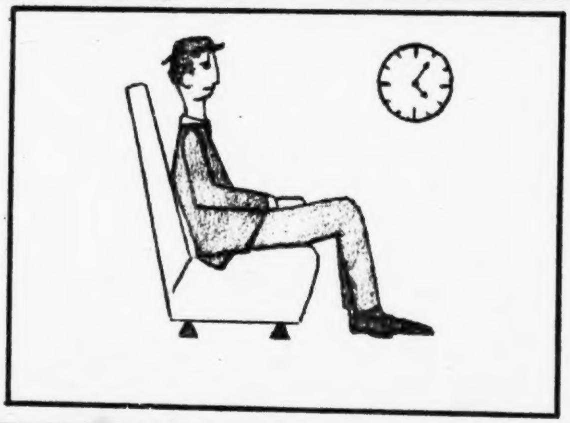
26 The children been skating. 0

The children have been skating. 0



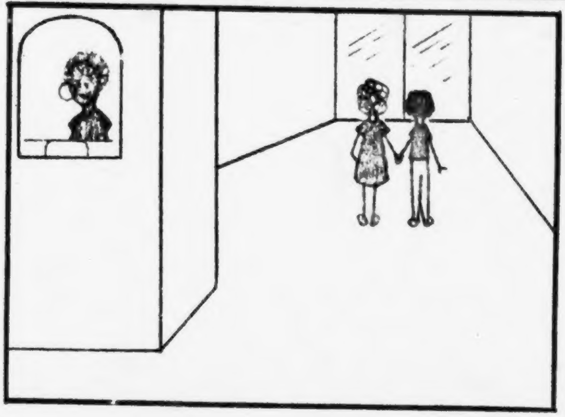
27. That man has been sitting here for hours. 0

That man done been sitting here for hours. 0



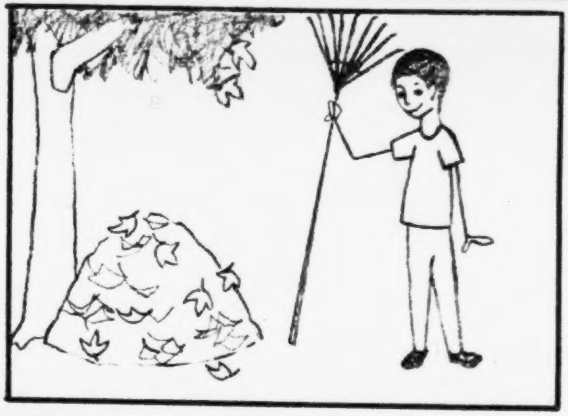
28 The children have gone to the movies. 0

The children have went to the movies. 0



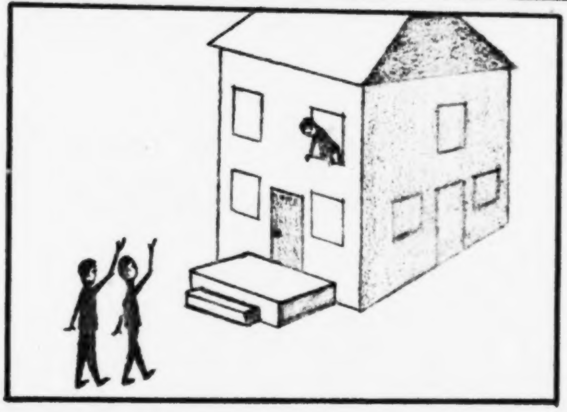
29. The boy did the work. ○

The boy done the work. ○



30. His friends had came for Billy. ○

His friends had come for Billy. ○



Appendix E-2

THE LANGUAGE PREFERENCE INVENTORY

Form B

THE LANGUAGE PREFERENCE INVENTORY*

Form B

Directions for Administering the Inventory

> Note to the Teacher: As the sample items are read on the tape, please check to be sure that all children understand how to mark the items on the inventory. As the tape progresses, check to be certain that everyone is on the correct page and the correct item. If necessary, stop the tape and re-orient anyone who is confused.

Taped Instructions

Turn to the first page with pictures on it. I will read two sentences to you, and you will choose the sentence that *you* like best. You'll see that there is a small circle at the end of each sentence. Draw a line from the sentence that you like best to the picture. Look at example A at the top of the page:

The little fish.
The little dog.

Draw a line from the sentence that you like best to the picture. Now look at example B in the middle of the page:

The fish is not little.
The fish ain't little.

Draw a line from the sentence that you like best to the picture. Now look at example C at the bottom of the page:

The cat runned to the box.
The cat ran to the box.

Draw a line from the sentence that you like best to the picture. Now turn to the next page, the page with the airplane at the top. Some of the sentences will sound almost alike. Remember that you are to choose the sentence that *you* like best. Listen carefully because I will read the sentences only once. Now let's begin.

---

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1. The two boy are playing with the ball.
   The two boys are playing with the ball.

Draw a line from the sentence that you like best to the picture.

2. This is Jane ball.
   This is Jane's ball.

Draw a line from the sentence that you like best to the picture.

3. The ball it is in his hands.
   The ball is in his hands.

Draw a line from the sentence that you like best to the picture.

4. The girls color the picture by themselves.
   The girls color the picture by theirselves.

Draw a line from the sentence that you like best to the picture. Now turn to page two, with the apple at the top. Remember, you're going to draw a line from the sentence that you like best to the picture.

5. Them flowers are on the table.
   Those flowers are on the table.

6. This car is new.
   This here car is new.

7. The boy lives in that there house.
   The boy lives in that house.

8. That dog is the worst one in town.
   That dog is the more worser one in town.

Now turn to page three, with the car at the top.

9. Jack is the most happiest boy.
   Jack is the happiest boy.

10. The girls don't have nothing to do.
    The girls don't have anything to do.

11. The boys is playing.
    The boys are playing.

12. Every day the boy is going fishing.
    Every day the boy be going fishing.

Now turn to page four, with the shoe at the top.

13. The boy were working hard.
    The boy was working hard.

14. The girl sweeps the floor.
    The girl sweep the floor.

15. That dog is looking out the window.
That dog looking out the window.

16. The children buy their candy.
The children buy they candy.

Now turn to page five, with the boat at the top.

17. Yesterday the boy rip his shirt.
Yesterday the boy ripped his shirt.

18. The boy has talk to his teacher.
The boy has talked to his teacher.

19. He is a nice man.
He a nice man.

20. That a nice cat.
That's a nice cat.

Now turn to page six, with the chair at the top.

21. The children mad.
The children are mad.

22. The girl happy.
The girl's happy.

23. The boy be done walked to school.
The boy will have walked to school.

24. Somebody broke the cup.
Somebody broken the cup.

Now turn to page seven, with the cup at the top.

25. The boy has been working.
The boy have been working.

26. The children been playing.
The children have been playing.

27. That dog has been sleeping all day.
That dog done been sleeping all day.

28. The children have gone to school.
The children have went to school.

Now turn to page eight, with the bird at the top.

29. The girl did her work.
The girl done her work.

30. The boy had took the paper.
The boy had taken the paper.

THE LANGUAGE PREFERENCE INVENTORY*

Form B

NAME______________________ TEACHER__________________ DATE__________

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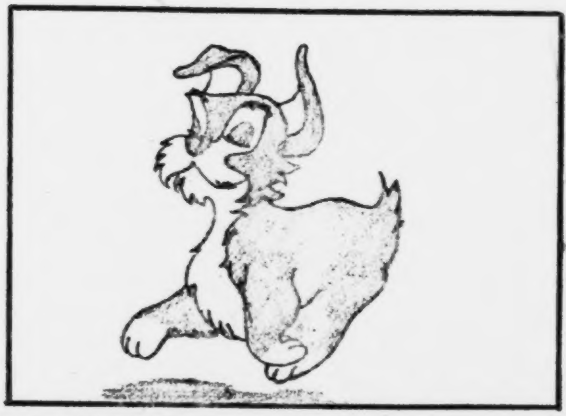
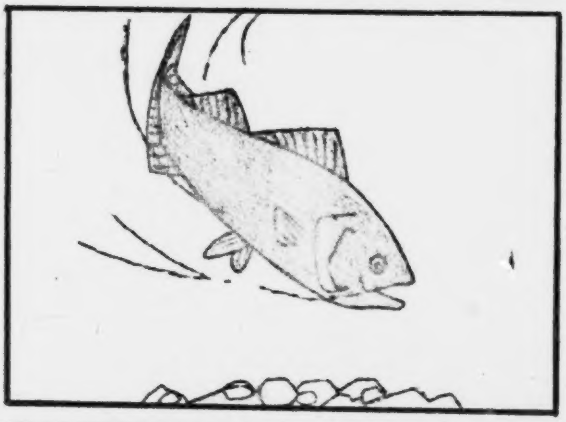
A. The little fish. 0

The little dog. 0



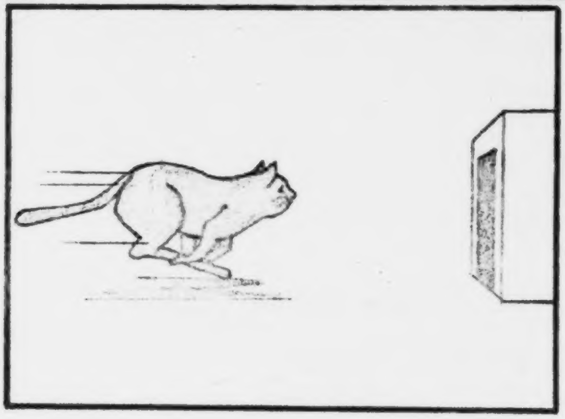
B. The fish is not little. 0

The fish ain't little. 0



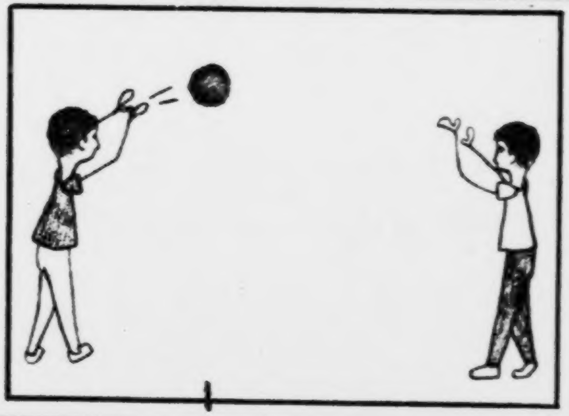
C. The cat runned to the box. 0

The cat ran to the box. 0



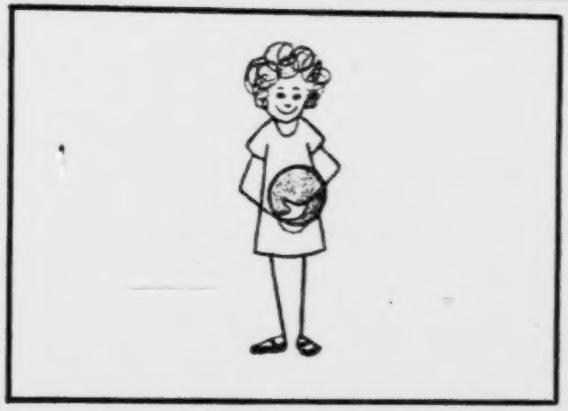
1. The two boy are playing with the ball. 0

The two boys are playing with the ball. 0



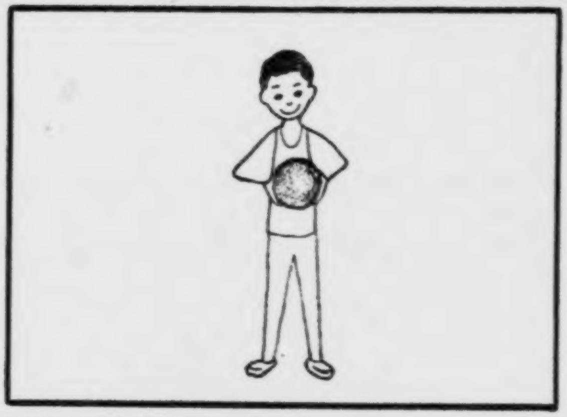
2. This is Jane ball. 0

This is Jane's ball. 0



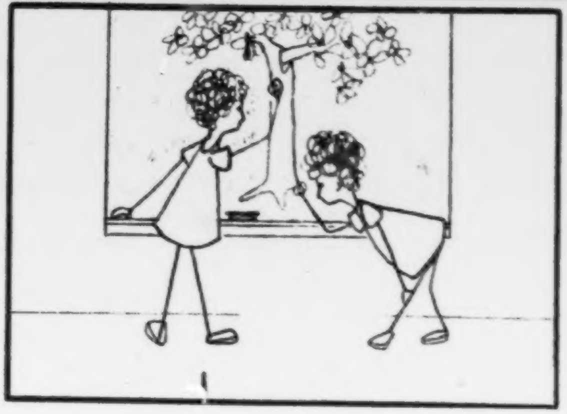
3. The ball it is in his hands. 0

The ball is in his hands. 0



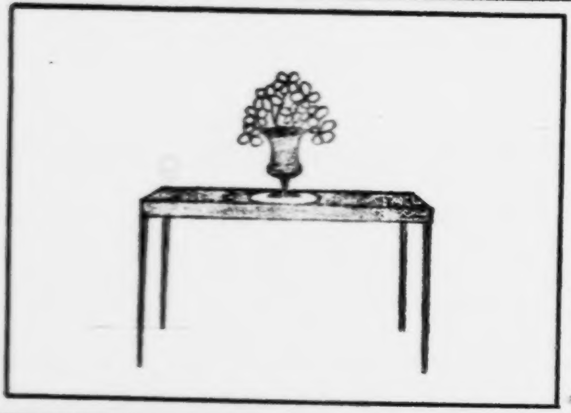
4. The girls color the picture by themselves. 0

The girls color the picture by theirselves. 0



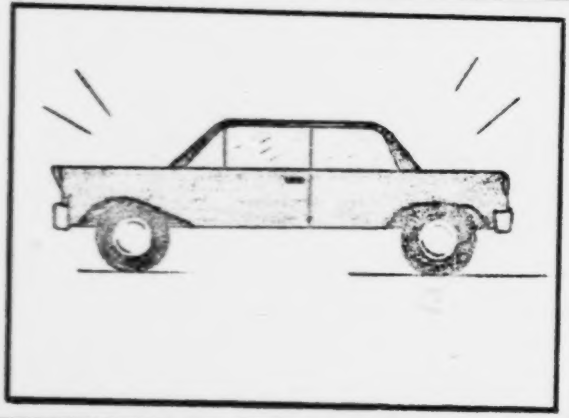
5. Them flowers are on the table. ○

These flowers are on the table. ○



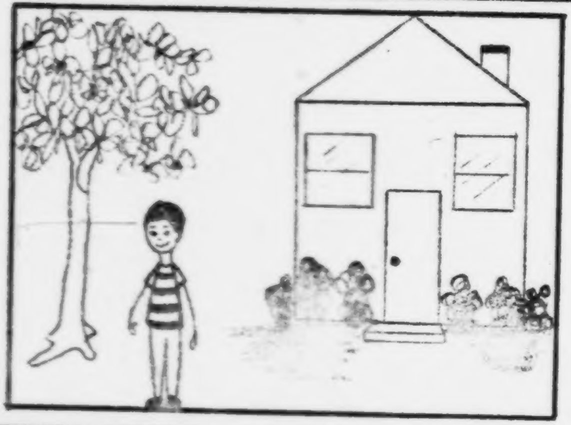
6. This car is new. ○

This here car is new. ○



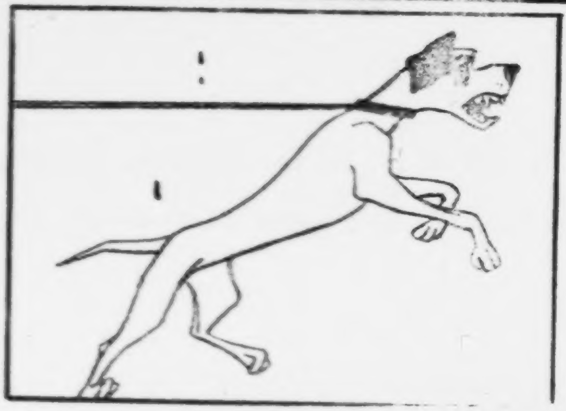
7. The boy lives in that there house. ○

The boy lives in that house. ○



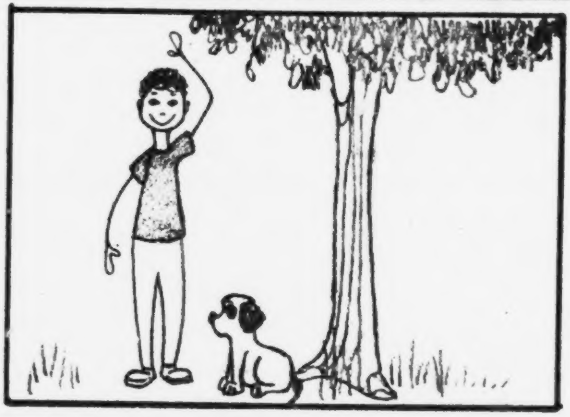
8. That dog is the worst one in town. ○

That dog is the more worser one in town. ○



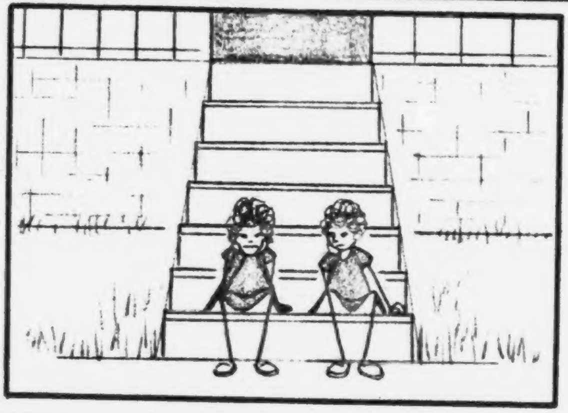
9. Jack is the most happiest boy. ○

Jack is the happiest boy. ○



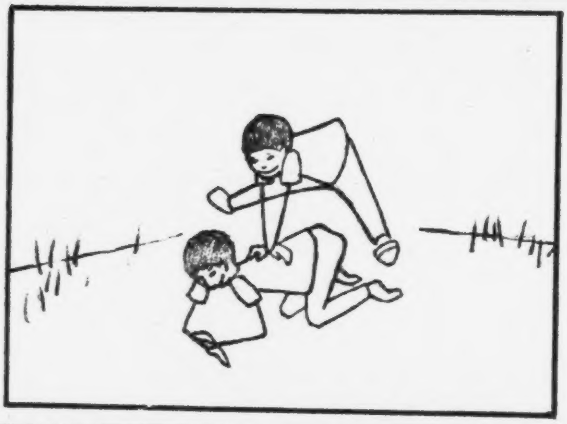
10. The girls don't have nothing to do. ○

The girls don't have anything to do. ○



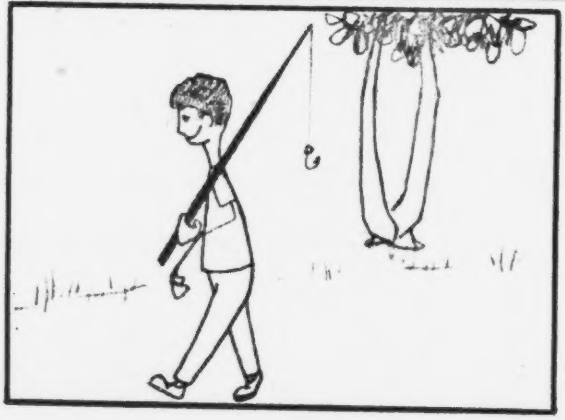
11. The boys is playing. ○

The boys are playing. ○



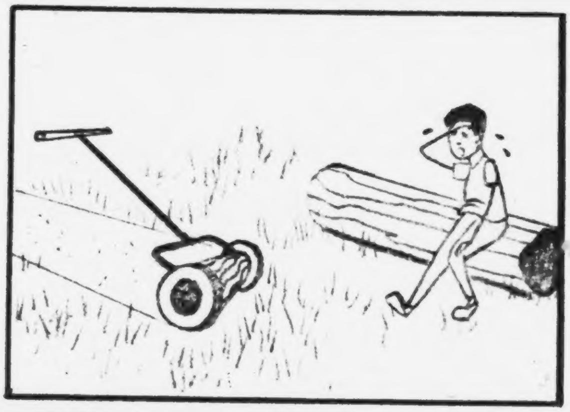
12. Every day the boy is going fishing. ○

Every day the boy be going fishing. ○



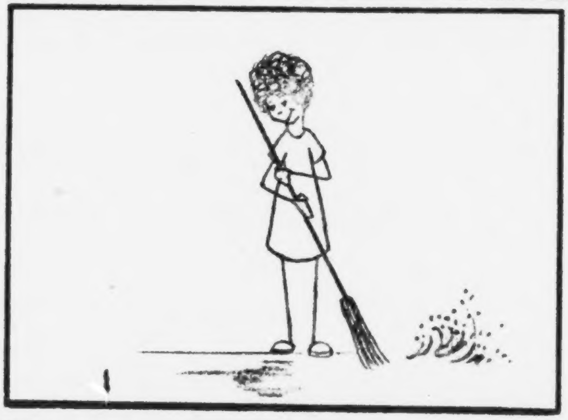
13. The boy were working hard. ○

The boy was working hard. ○



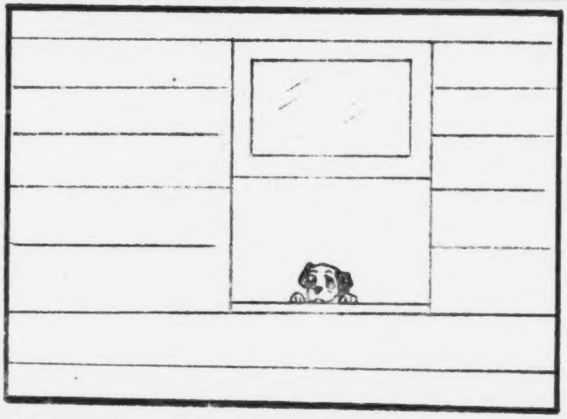
14. The girl sweeps the floor. ○

The girl sweep the floor. ○



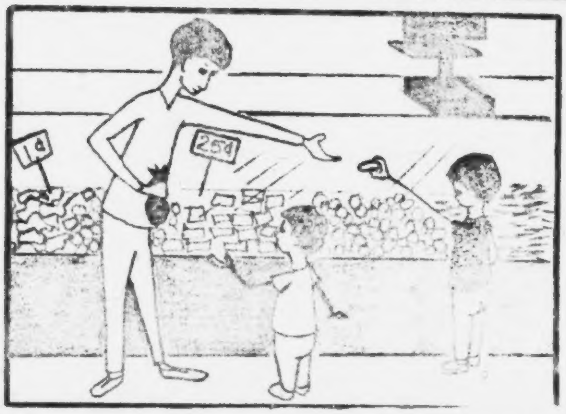
15. That dog is looking out the window. ○

That dog looking out the window. ○

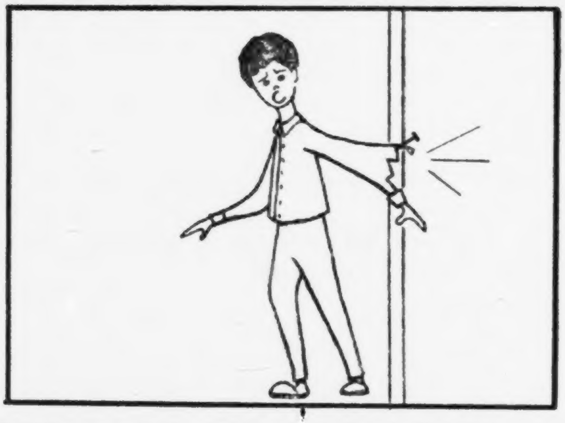


16. The children buy their candy. ○

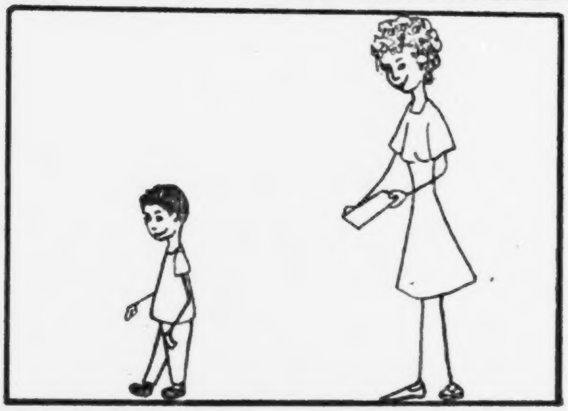
The children buy they candy. ○



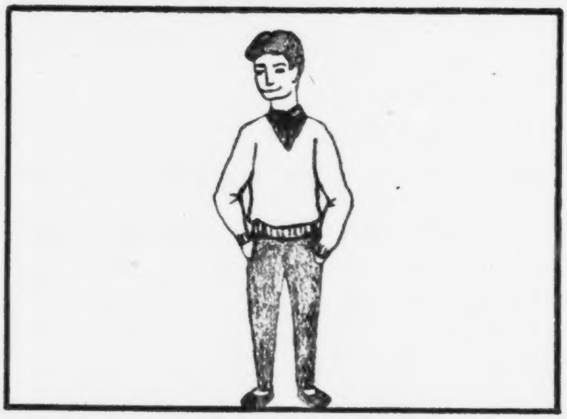
17. Yesterday the boy rip his shirt. ○
Yesterday the boy ripped his shirt. ○



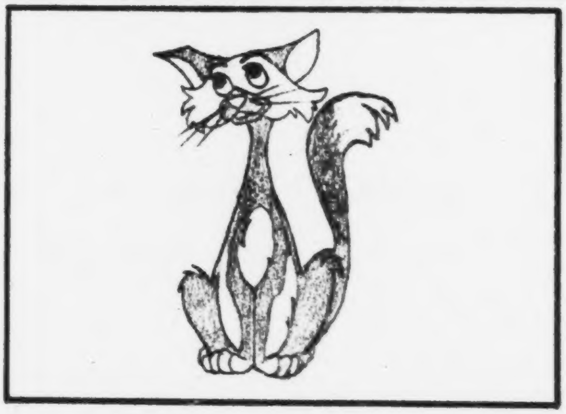
18. The boy has talk to his teacher. ○
The boy has talked to his teacher. ○



19. He is a nice man. ○
He a nice man. ○

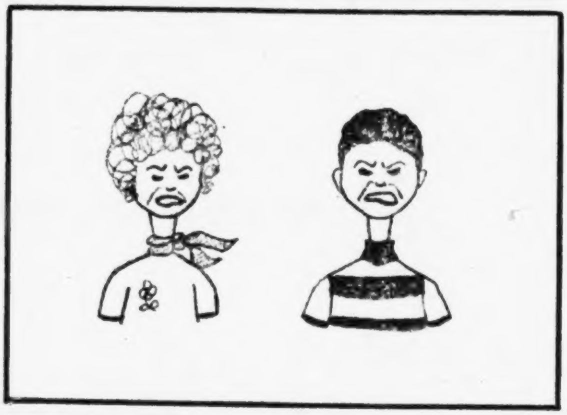


20. That a nice cat. ○
That's a nice cat. ○



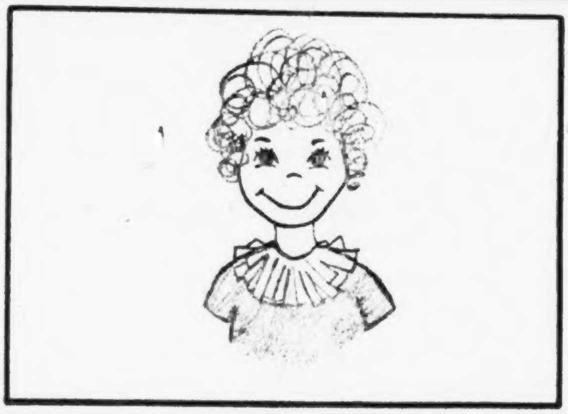
21. The children mad. 0

The children are mad. 0



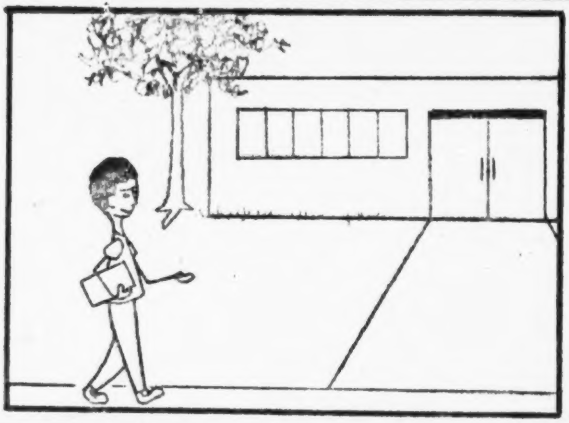
22. The girl happy. 0

The girl's happy. 0



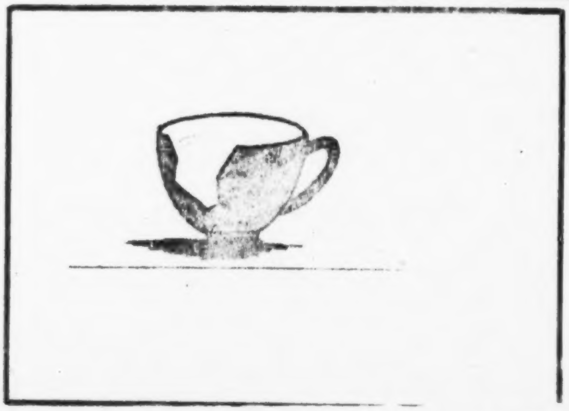
23. The boy be done walked to school. 0

The boy will have walked to school. 0



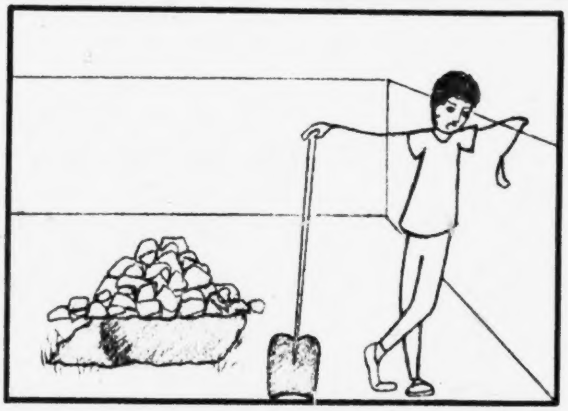
24. Somebody broke the cup. 0

Somebody broken the cup. 0



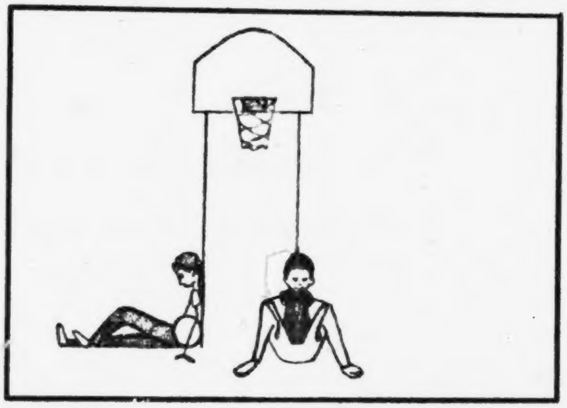
25. The boy has been working. 0

The boy have been working. 0



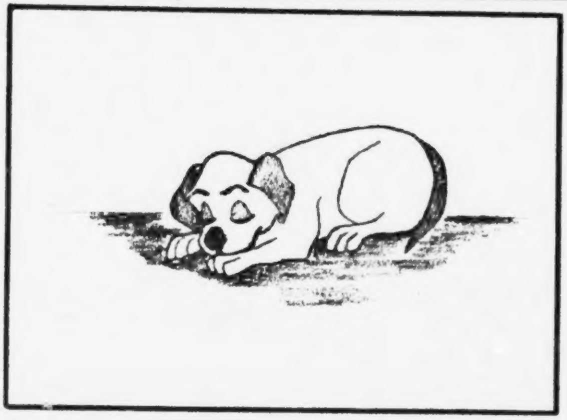
26. The children been playing. 0

The children have been playing. 0



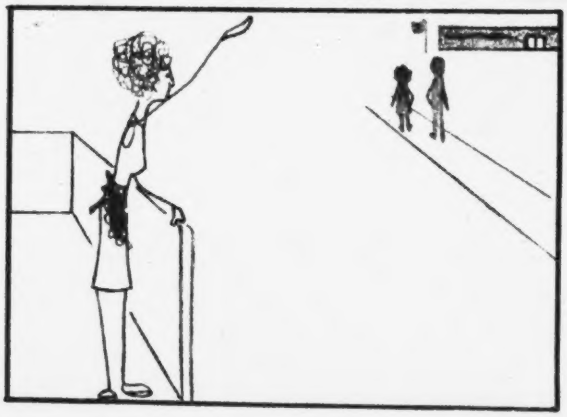
27. That dog has been sleeping all day. 0

That dog done been sleeping all day. 0



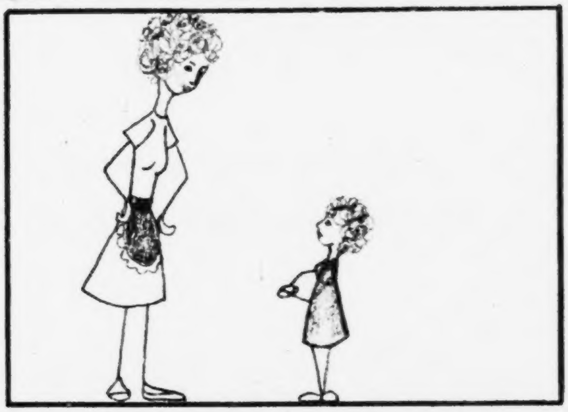
28. The children have gone to school. 0

The children have went to school. 0



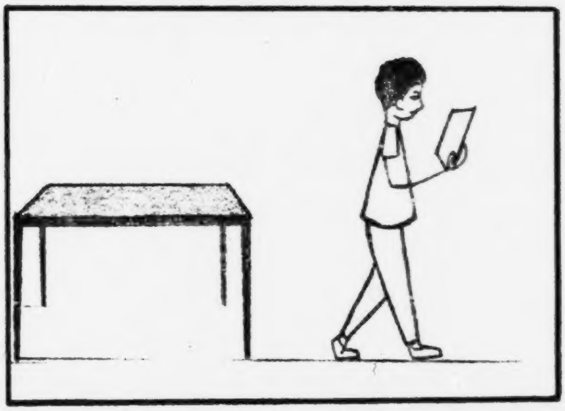
29. The girl did her work. 0

The girl done her work. 0



30. The boy had took the paper. 0

The boy had taken the paper. 0



Appendix F

I AM -- Self-Concept Assessment Instrument

I AM--Self Concept Assessment

Introduction to This Type of Self-Concept Assessment

In order that "I AM" might gain as much self-concept information as possible, the child must not feel (1) that this is like a school paper in which answers are right or wrong, and (2) that he is doing this to please his teacher but rather to help us understand how he feels about school--i.e., what he likes and doesn't like.

It is very important that you as the teacher establish an atmosphere as "matter of fact" as possible if accurate results are to be obtained. If the child responds positively to school situations about which he in reality has negative feelings, the instrument will be of little instructional value to classroom planning. In other words, if the child feels free to express his opinion, he will reveal those situations which are uncomfortable for him.

I AM Forms and Spatial Orientation

Form M (males) has been designed for boys and Form F (females) for girls. Different pictorial characteristics have been given attention in the instrument.

Necessary for performance on the "I AM" instrument is basic understanding of top/middle/bottom spatial relationships. Children who can locate the top, middle, or bottom row of pictures will easily follow the general directions for the task; for those youngsters having difficulty, warm-up items have been provided to develop top/middle/bottom orientation.

Administering I AM

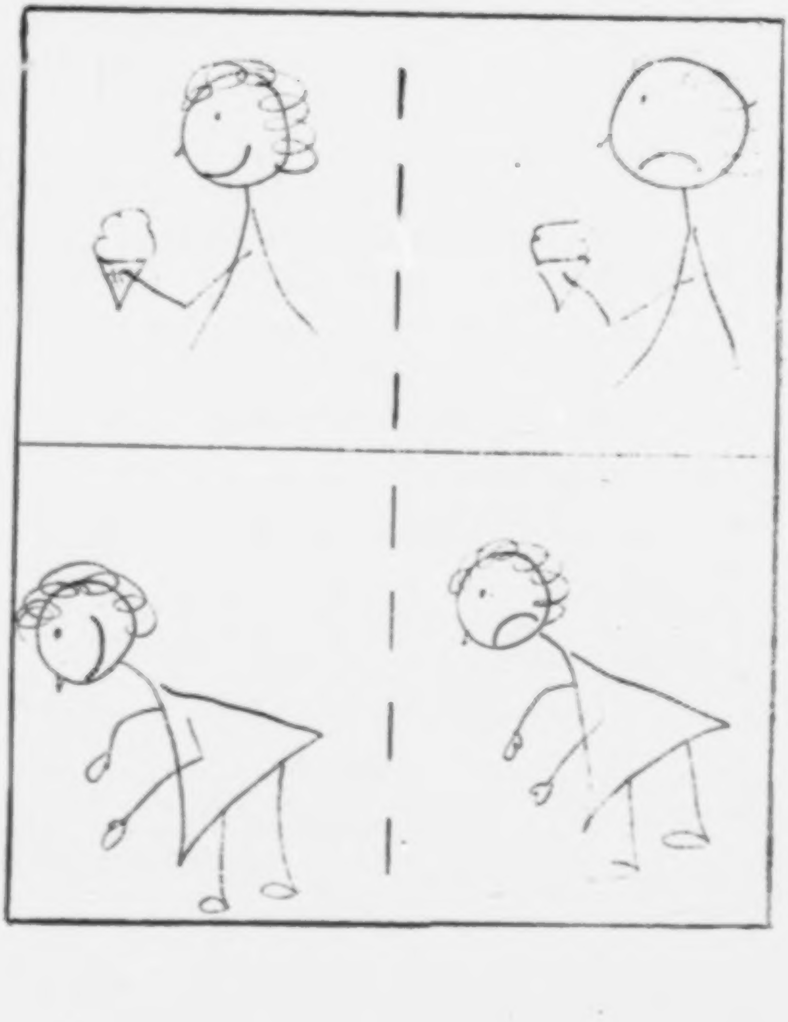
(Before children see the I AM Inventory): "Today we are going to look at some pictures of things we do in school. All of us know of things we like to do and know of things we do not like to do. When we like something, we are happy about it. When we don't like something, we feel sad. You are going to look at some pictures to see if you would be happy or sad in each one."

(Children get ready with pencil and eraser. Pass out the I AM instrument.) "Do not mark any picture before I tell you about it." (This is very important.)

Item A "Look at the first picture of the two children getting presents. How are the children different? (After they discover that the first one is happy and the second one is sad--) Point to the one that is happy. (Look around to check this.) Now point to the one that is sad. If you were the child getting that present, would you be happy or would you be sad? Draw a circle around the one that would be you." (Check to see that this is done.)

Item B "Look at the next picture, where the children fell down stairs and got hurt. How are the children different? (After the children make the distinction between the happy and sad faces--) Point to the girl who fell down and is happy. Now point to the girl who fell down and is sad. If you fell down stairs and got hurt, would you be happy or would you be sad? Draw a circle around the one that would be you."

Sample items A and B are to teach the task. Continue after you are assured that each child understands the distinction he is to make (i.e., is he typically happy or sad in each of the situations presented to him). Any child who does not choose happy for item A and sad for item B should be asked about his reason for doing so. If his explanation indicates that he does understand the happy/sad distinction, proceed. If not, use the chalkboard with the following examples:



"When you get an ice cream cone, are you happy or are you sad? Draw a circle around the one that would be you."

"When you lose your ring, are you happy or are you sad? Draw a circle around the one that would be you."

"Before you turn the page, listen very carefully. All of us like to do some things and don't like to do other things; so just decide how you really feel. You do not get anything marked wrong. This is just to help us know what you like and don't like."

Page 1 "Turn to the next page (demonstrate using copy of I AM). It has an apple up in the corner. Look at the top row of pictures. When you are in school, which child is you--the happy one or the sad one? Draw a circle around the one that is you most of the time in school."

(Point to the middle row, using copy of I AM) "When you read, or look at books, are you happy or are you sad? Draw a circle around the one that is you."

(Point to the bottom row.) "When you run, at school, are you happy or are you sad? Draw a circle around the one that is you."

(Use the following directions and wording for the remainder of I AM. Consistency in administration of I AM is very important.)

Page 2 "Turn the page. (Demonstrate using copy of I AM.) This is page 2 and has a star at the top of it."

"Look at the top row of pictures. When the teacher talks to you, are you happy or are you sad? Draw a circle around the one that is you."

"Look at the middle row. When you cut with scissors, are you happy or are you sad? Draw a circle around the one that is you."

"Look at the bottom row. When you write at school, are you happy or are you sad? Draw a circle around the one that is you."

Page 3 "Turn the page. (Demonstrate using copy of I AM.) This is page 3 and has an airplane at the top of it."

"Look at the top row of pictures. When ____________________ ____________________, are you happy or are you sad? Draw a circle around the one that is you."

Continue with middle and bottom row.

The information for pages three through eight follows:

Page No.	Symbol	
3	airplane	top row: "When the teacher reads to your class..."
		Middle row: "When you read to the class..."
		Bottom row: "When you talk to your friends at school..." ("Pretend this is a friend your age.")

Page No.	Symbol	
4	boat	top: "When you play on the bars..."
		middle: "When you get up for show and tell..."
		bottom: "When the teacher asks questions..."
5	cat	top: "When you leave for school in the morning..."
		middle: "When you get a book at school..."
		bottom: "When you take a school paper home..."
6	kite	top: "When you go to the office..."
		middle: "When the teacher gives back papers that you did..."
		bottom: "When you do your work in school..."
7	cup	top: "When you take a book home..."
		middle: "When you play at recess..."
		bottom: "When you read in bed at home..."
8	fish	top: "When you write on the chalkboard..."
		middle: "When you draw at school..."

Please make sure that each youngster has his name on his I AM Inventory.

Appendix F-1

Form F -- GIRLS

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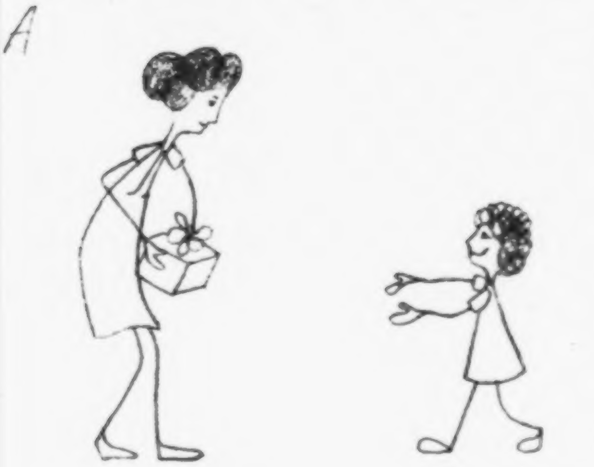
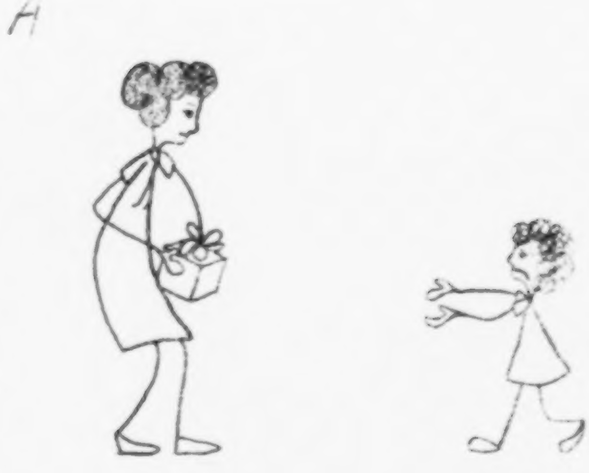
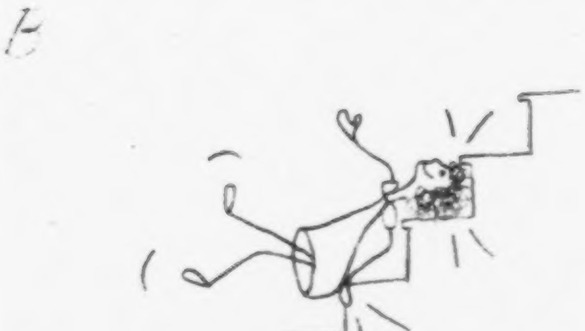
SET: F

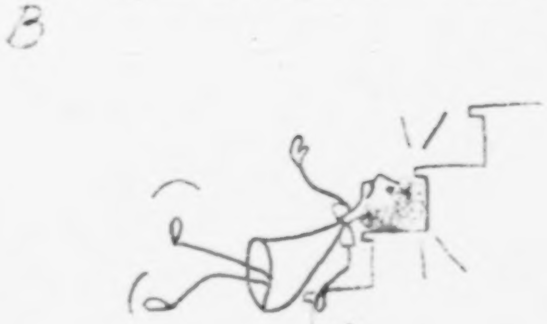
TEACHER:

DATE:









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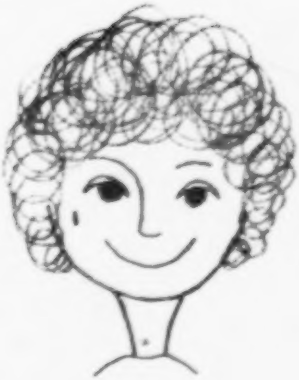

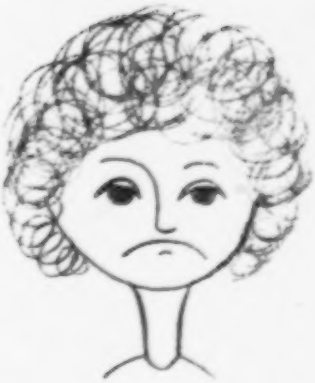

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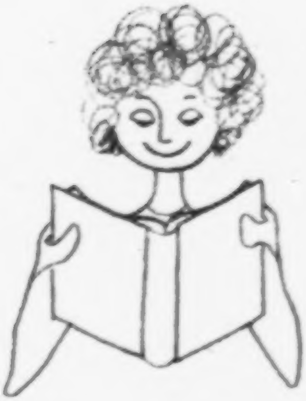

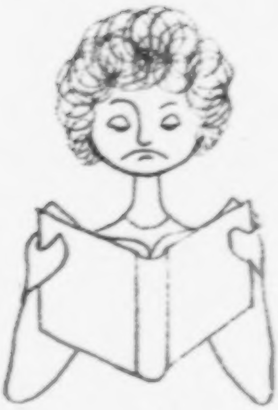

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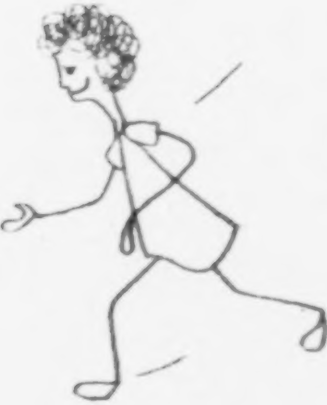

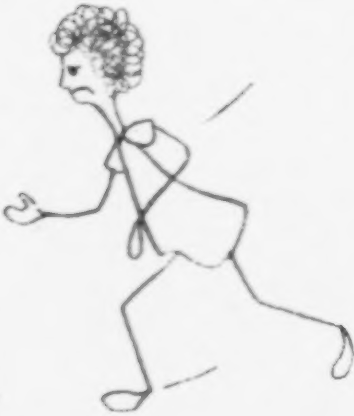

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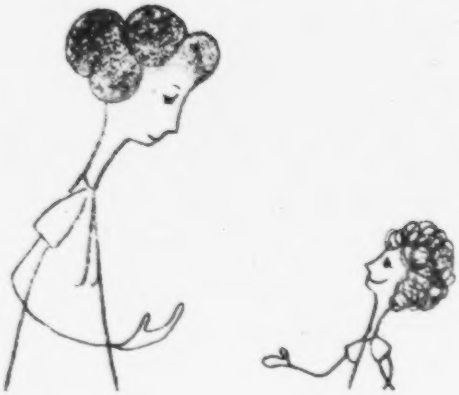

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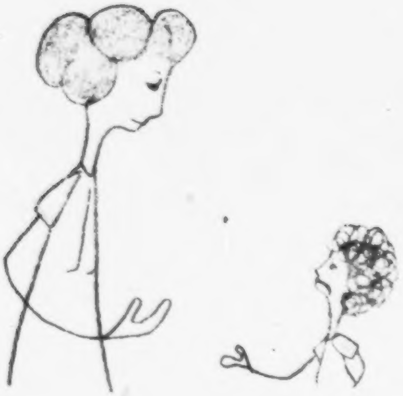

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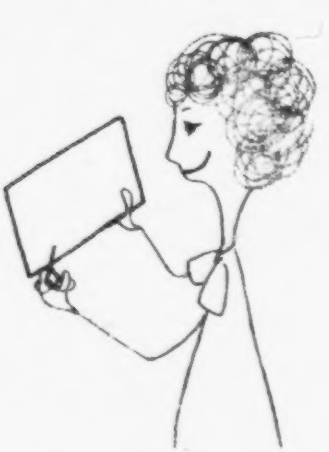

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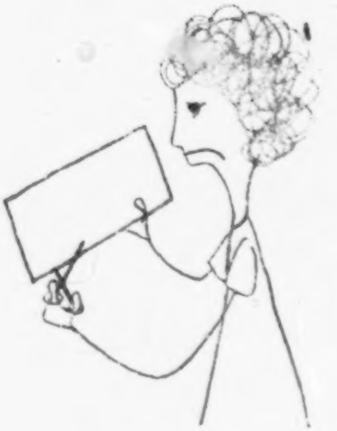

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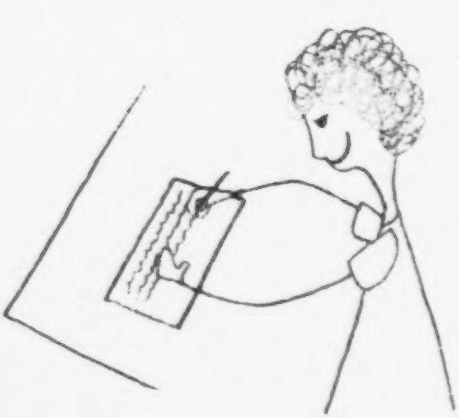

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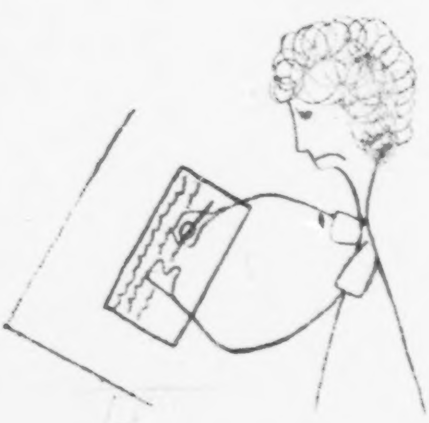

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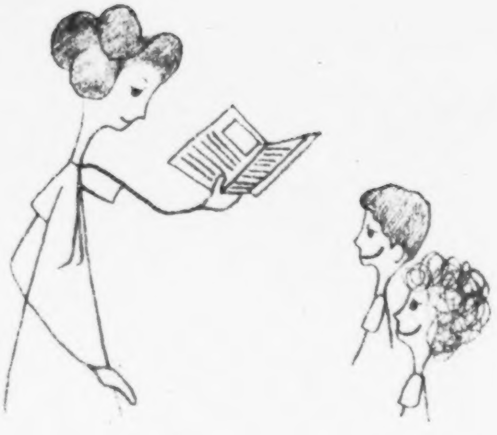

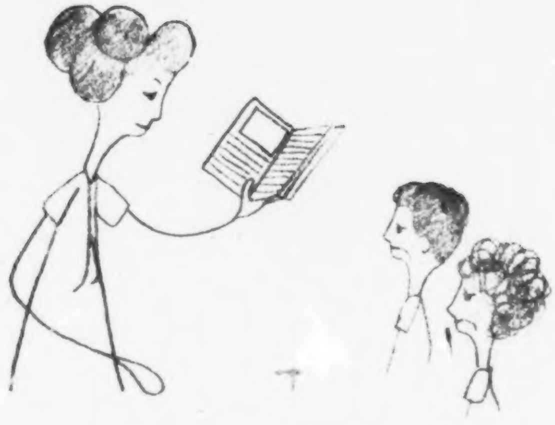

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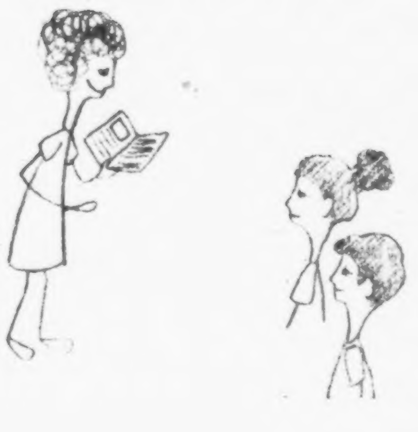

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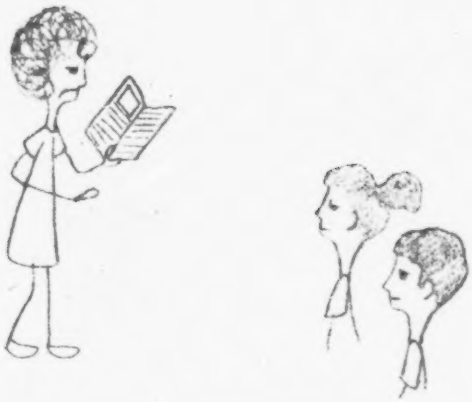

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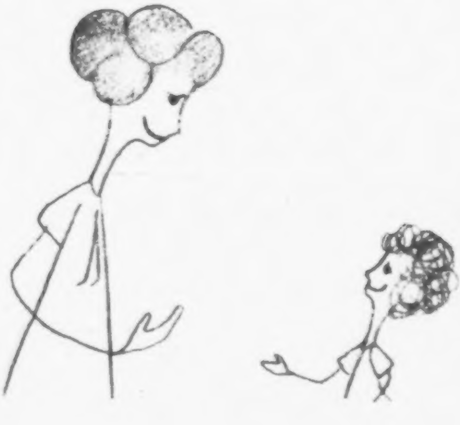

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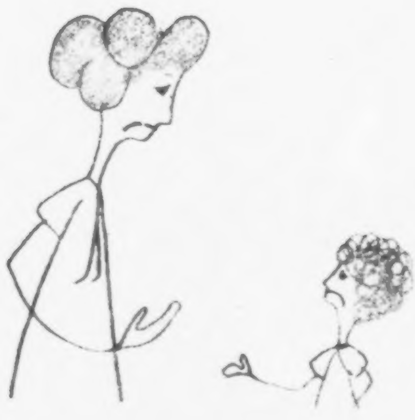

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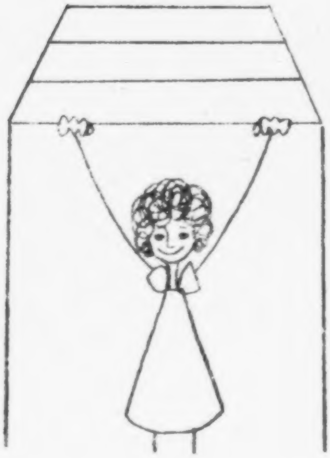

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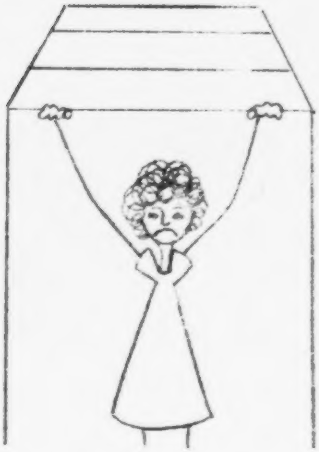

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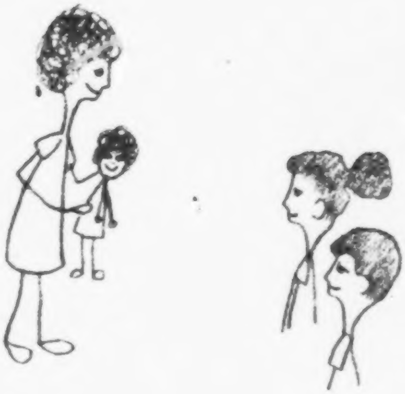

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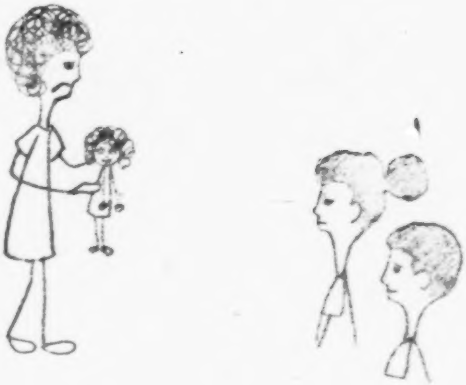

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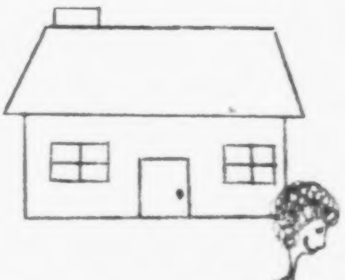

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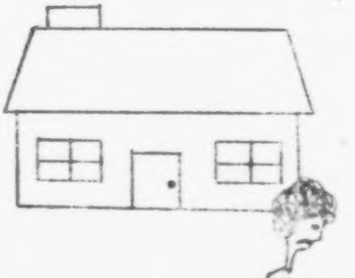

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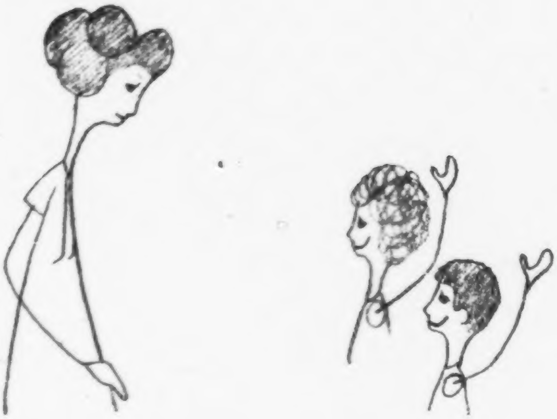

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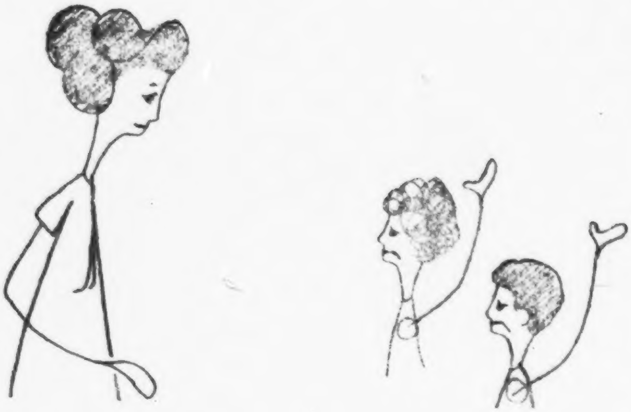

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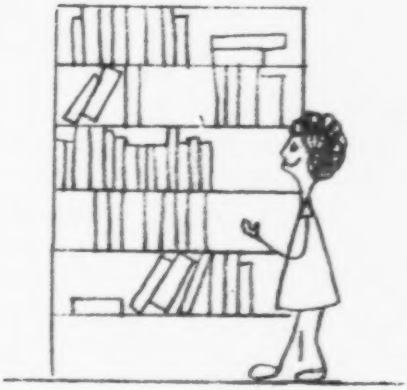

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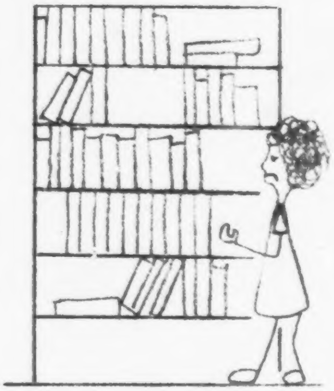

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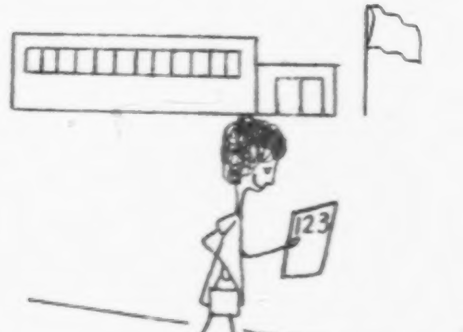

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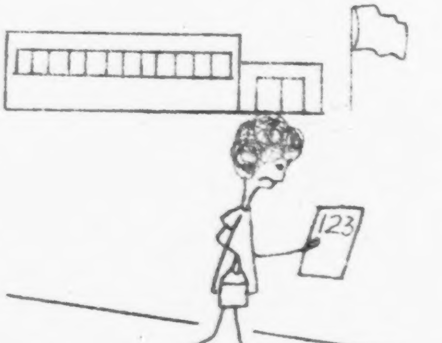

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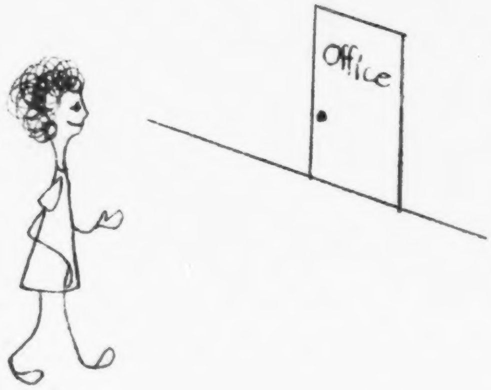

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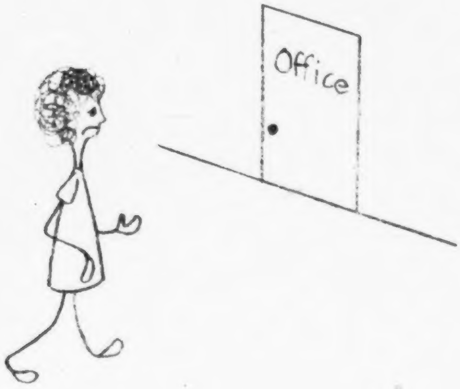

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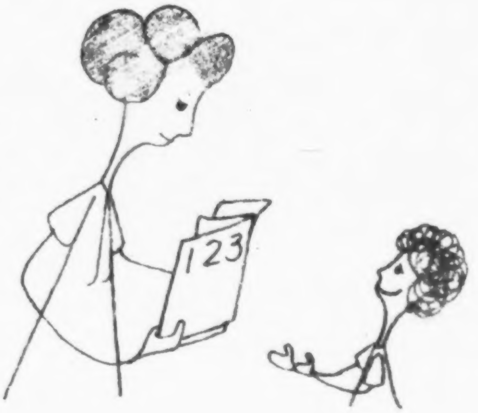

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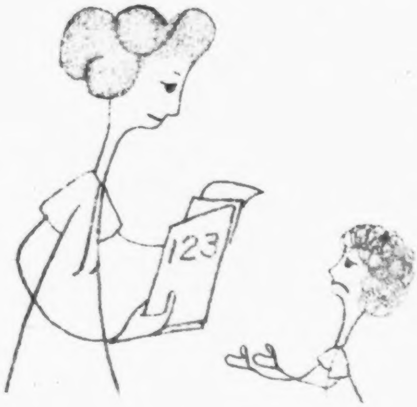

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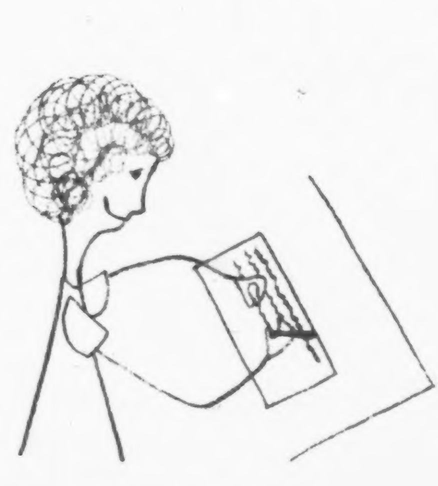

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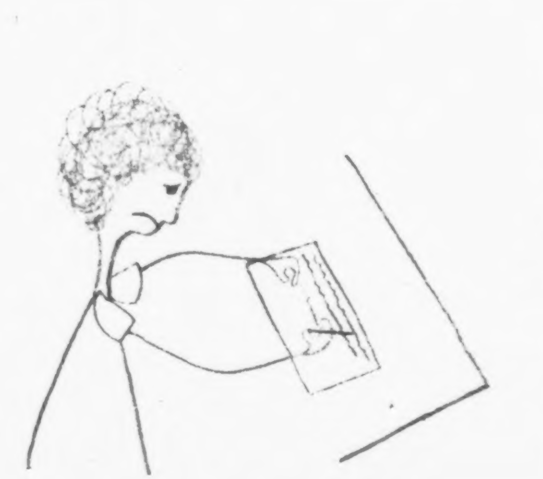

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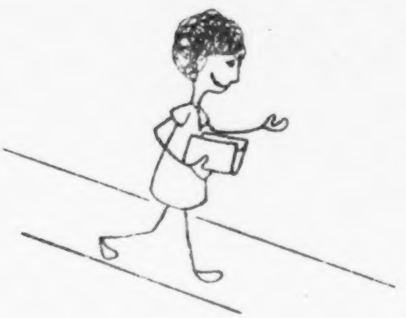

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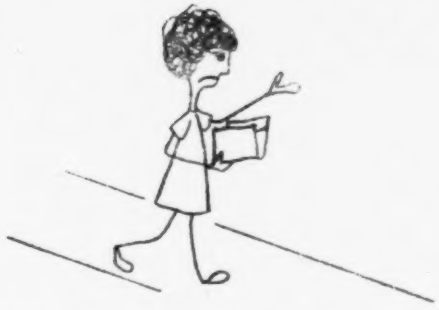

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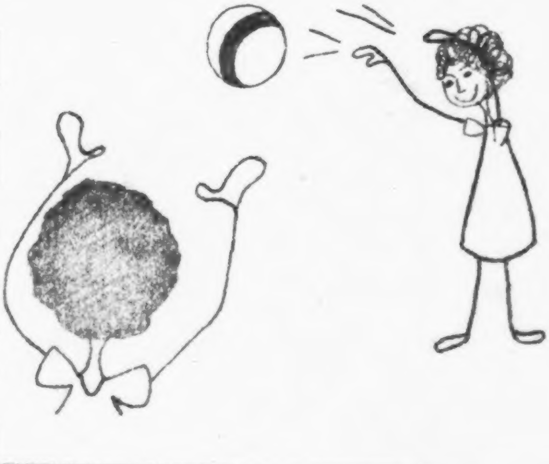

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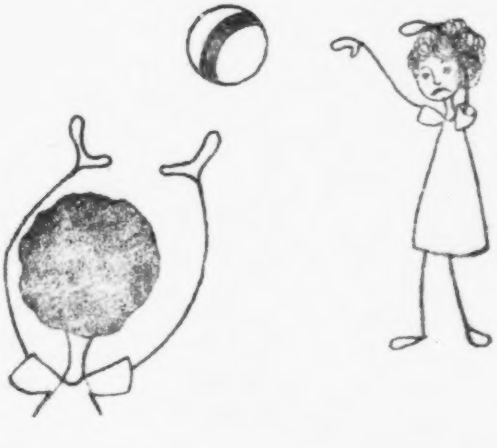

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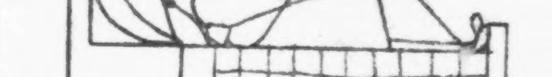

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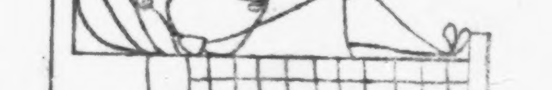

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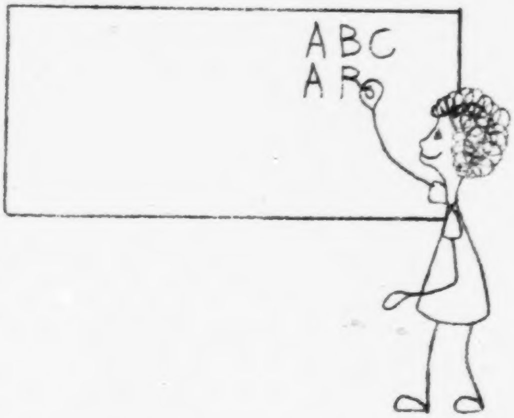

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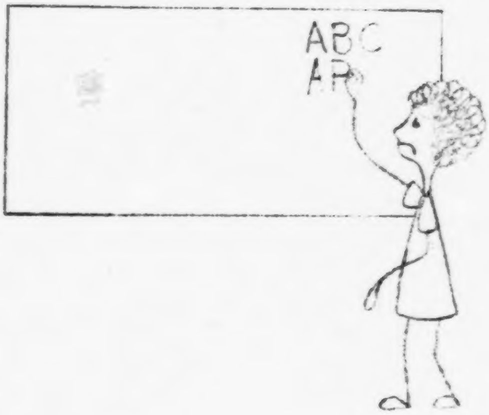

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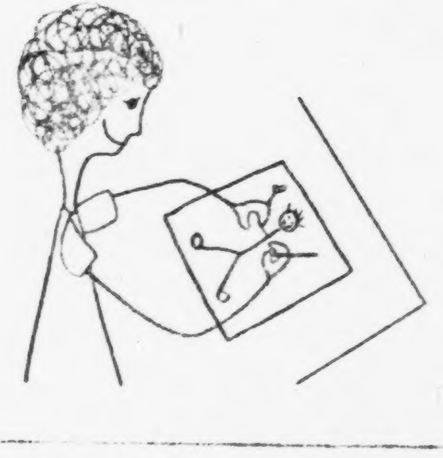

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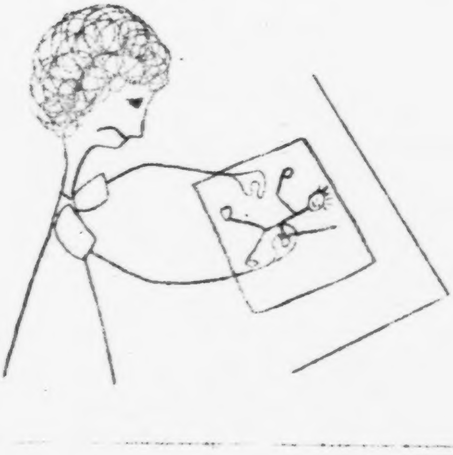

Appendix F-2

Form M -- BOYS

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TEACHER: DATE:

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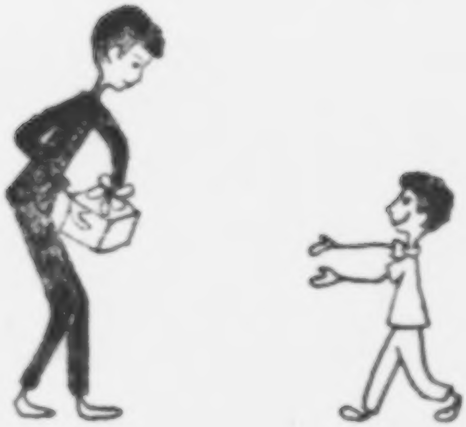

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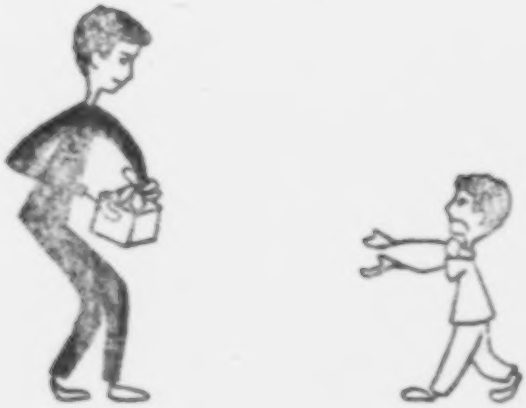

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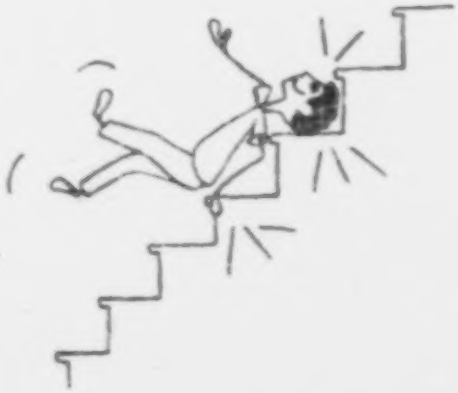

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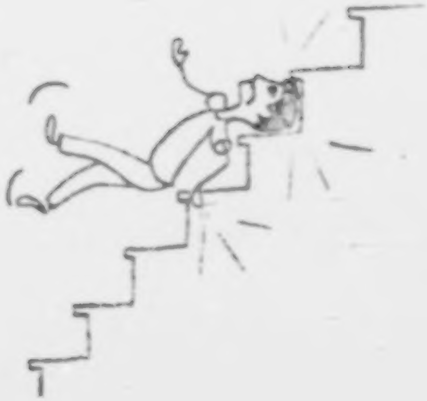

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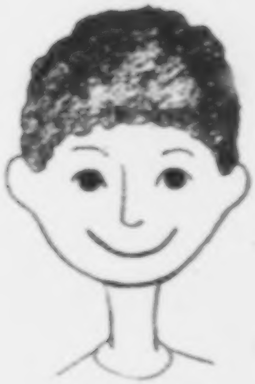

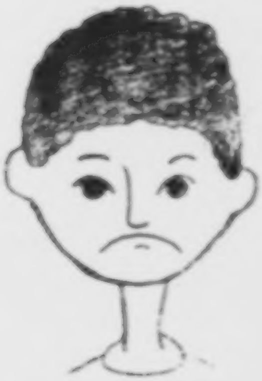

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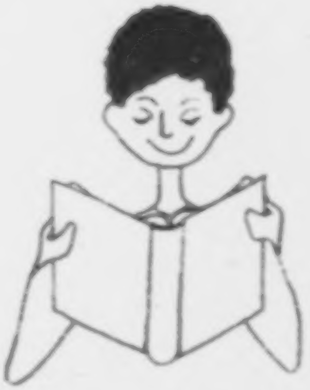

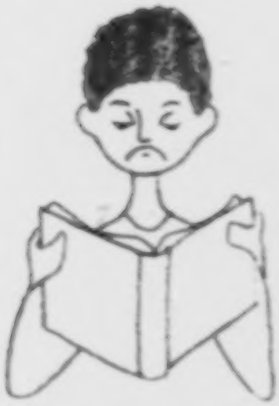

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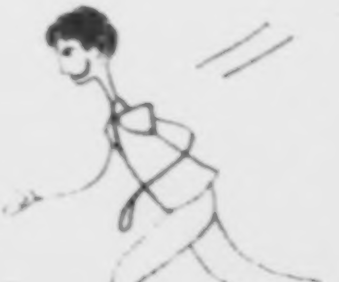

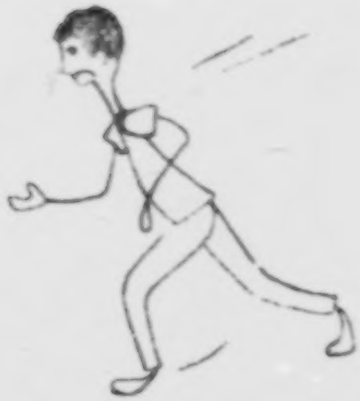

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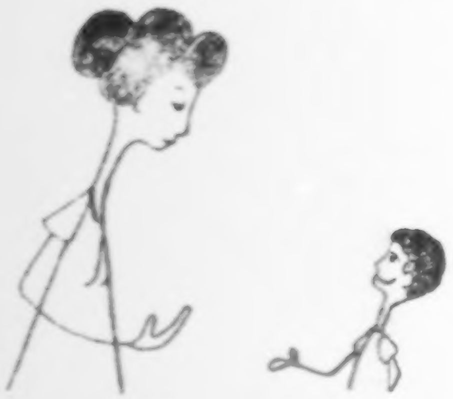

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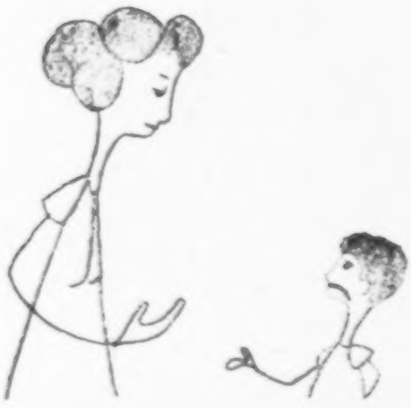

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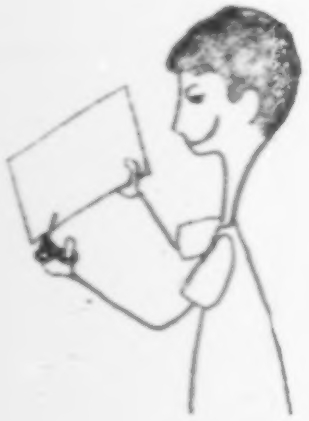

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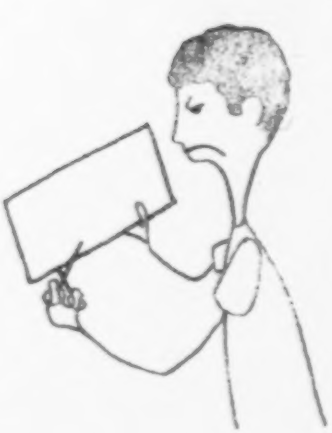

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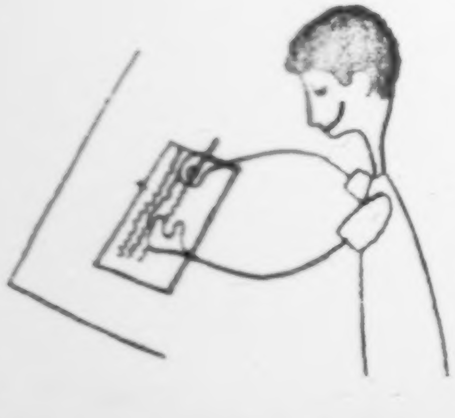

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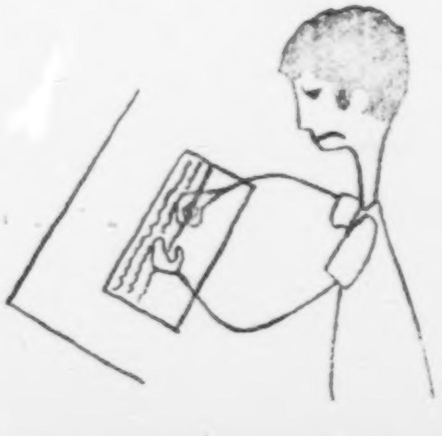

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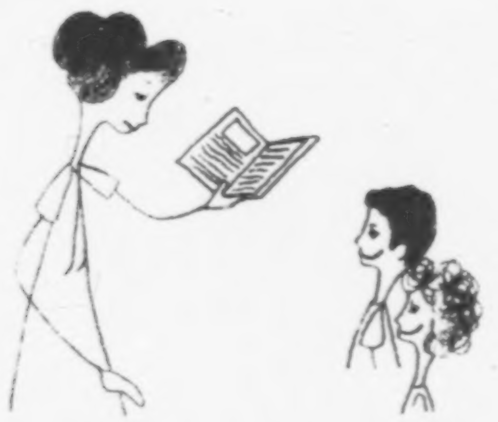

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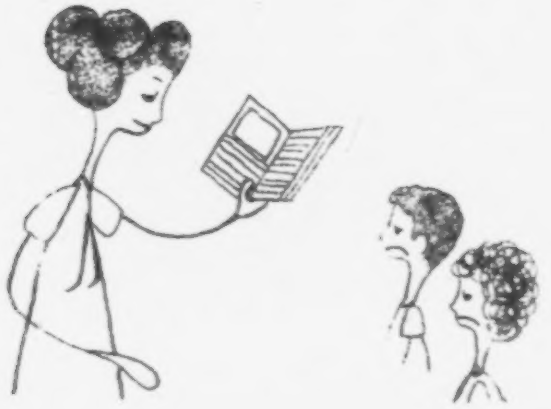

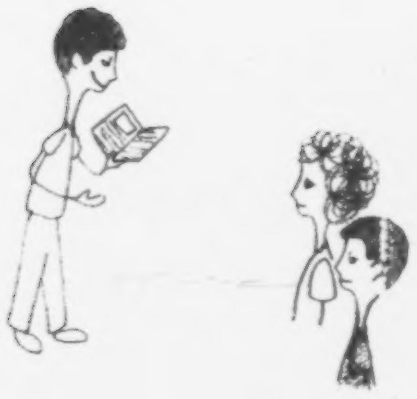

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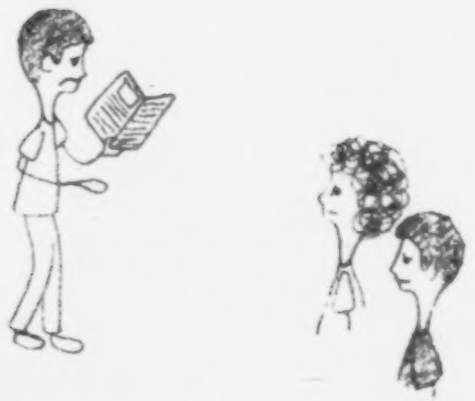

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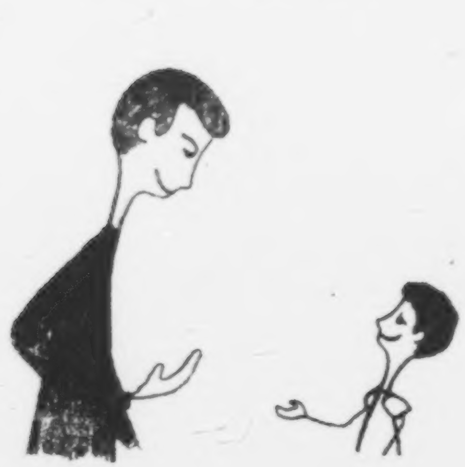

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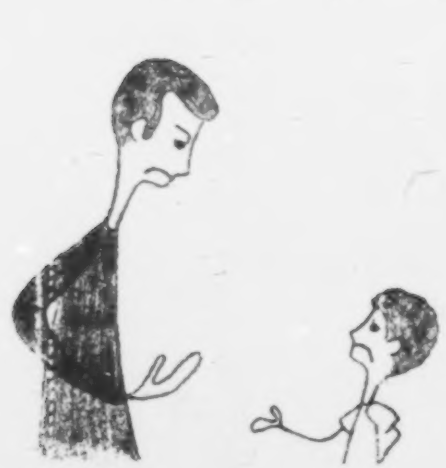

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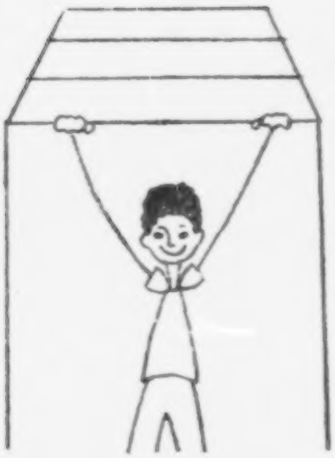

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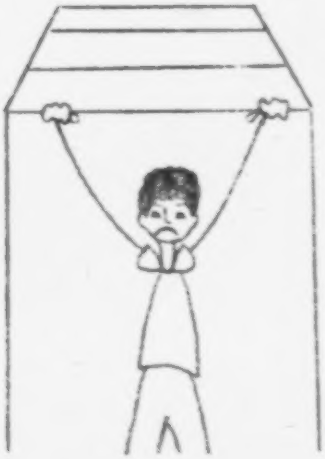

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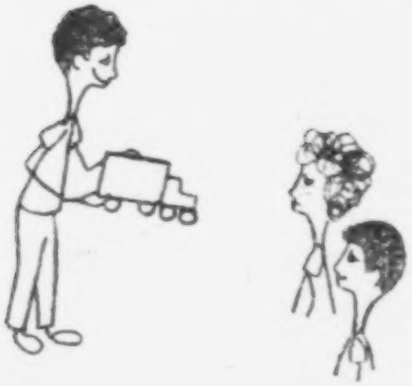

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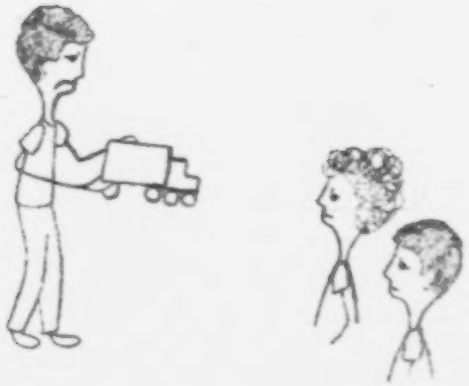

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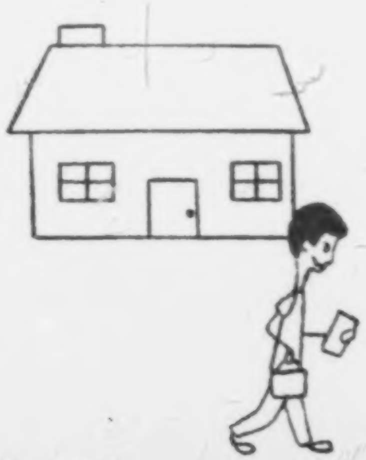

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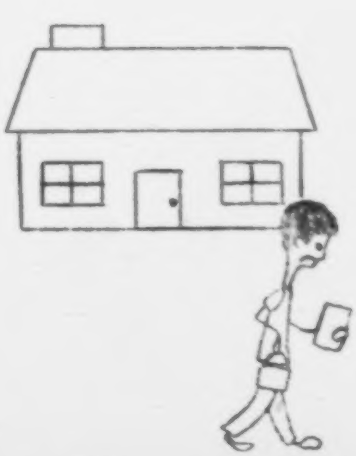

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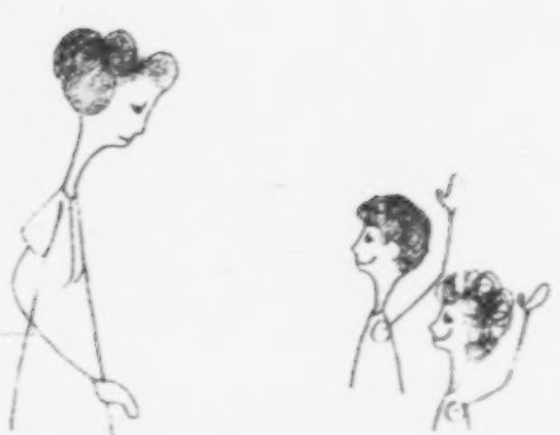

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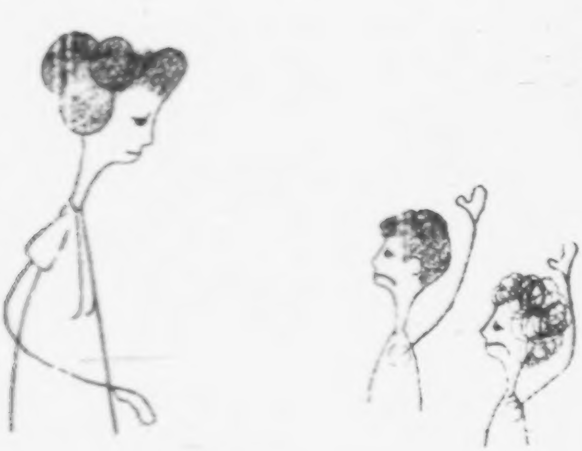

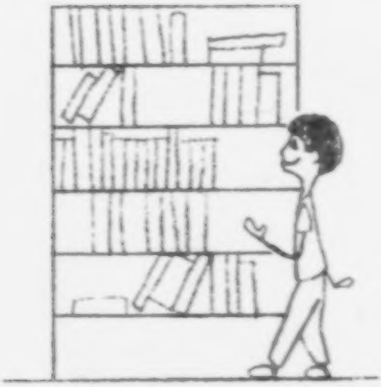

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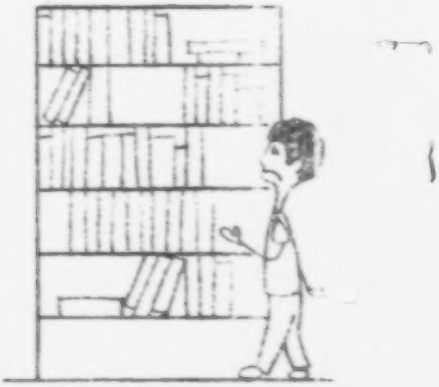

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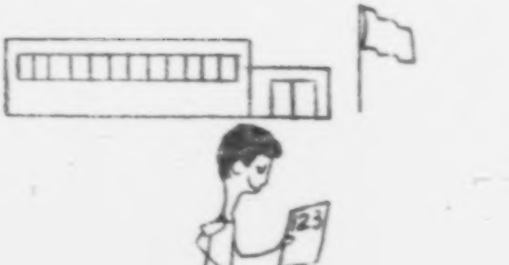

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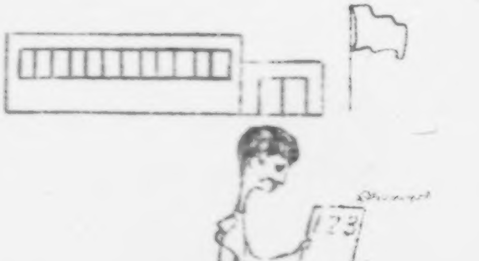

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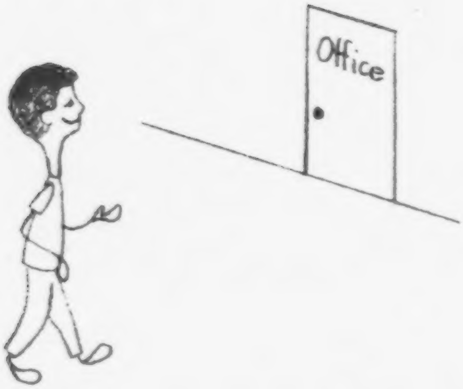

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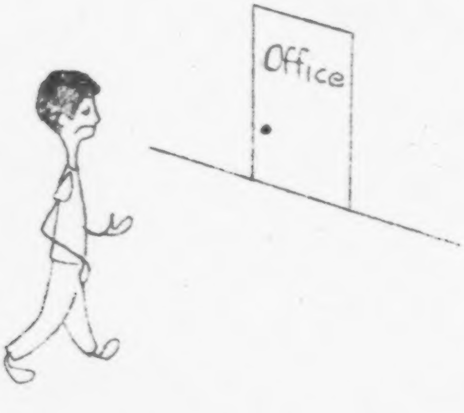

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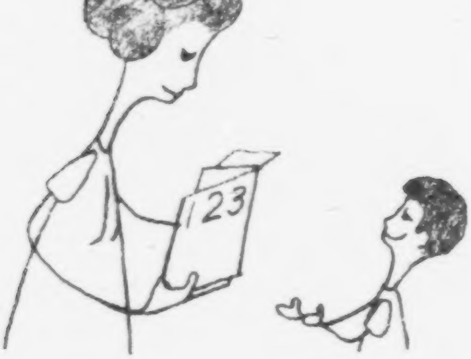

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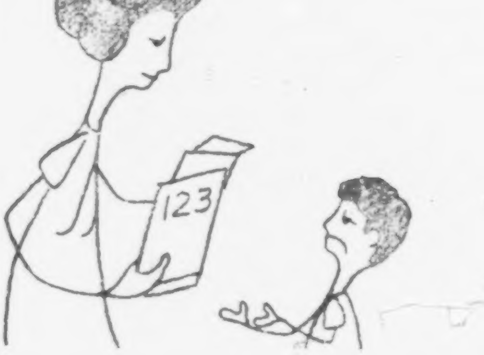

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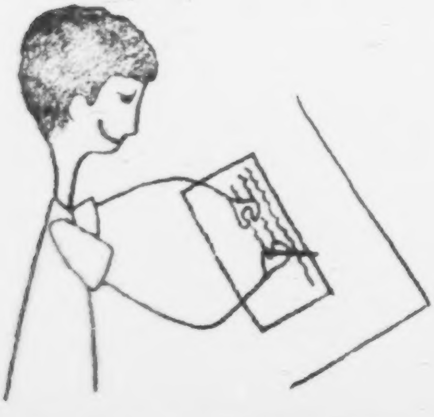

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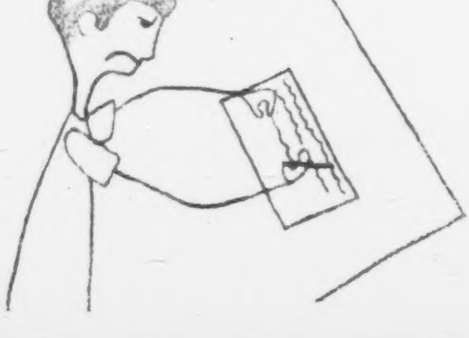

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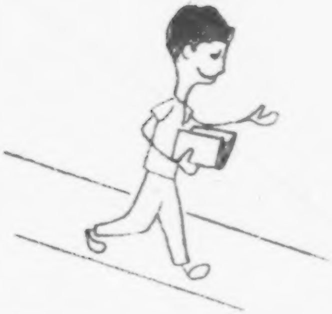

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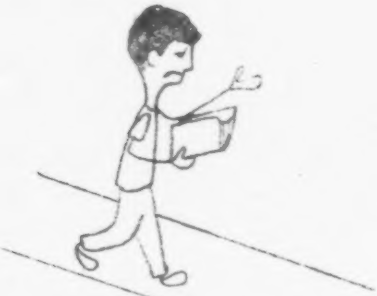

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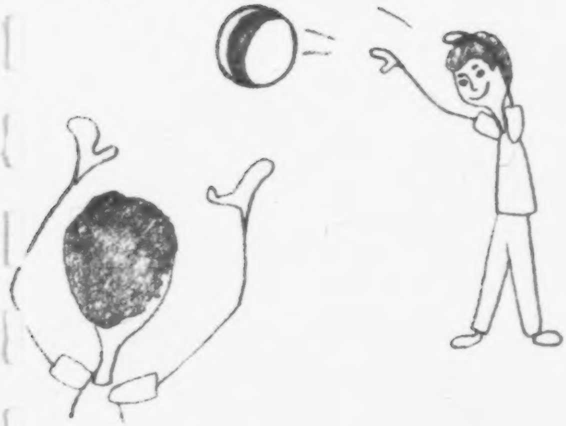

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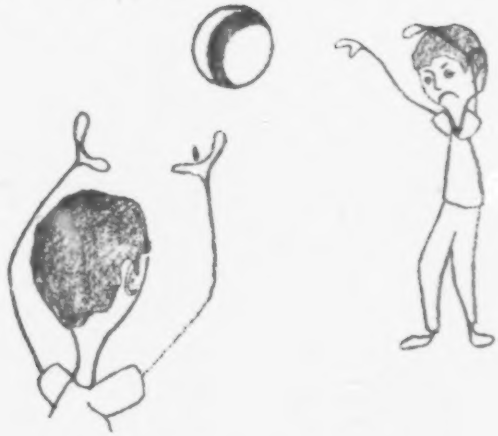

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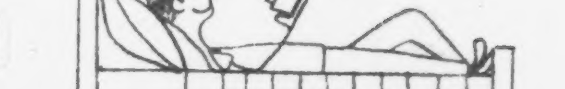

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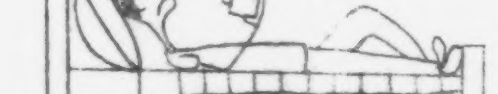

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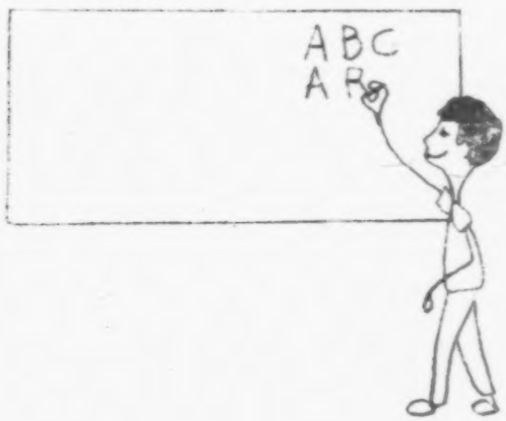

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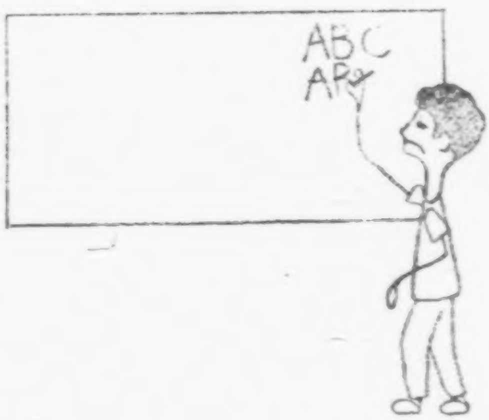

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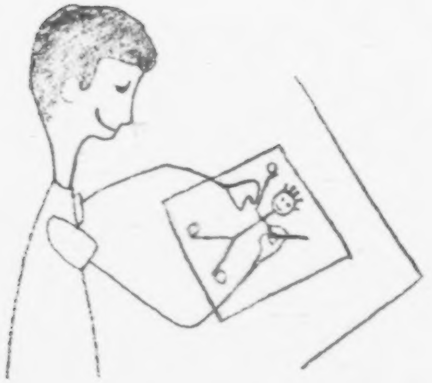

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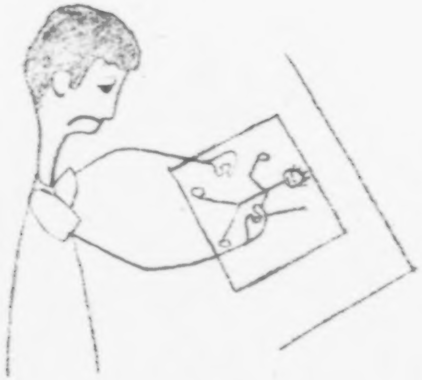

Appendix G

DELTA Comprehension Taxonomy

THE DELTA COMPREHENSION TAXONOMY

Introduction and Definitions

The DELTA Comprehension Taxonomy has been developed (1) as a framework for discovering and analyzing the levels at which youngsters operate in terms of comprehension abilities, (2) as a guide for encouraging the development of more complex comprehension skills and their corresponding thought processes, and (3) as a means of analyzing interactive strategies used by teachers and children in the process of developing such skills.

The DELTA Taxonomy is concerned with comprehension as the process of thinking in response to symbolic representation which ranges along a meaning continuum from factual to interpretive to applicative. Each of these dimensions may be represented on a concrete, functional, or abstract level; and each of these dimensions may be observed in the affective, cognitive, and/or interactive domain. Within each level of the meaning continuum, operations are performed which indicate the use of comprehension abilities. These abilities are generalized knowledge-acquisition skills permitting people to acquire and exhibit information gained as the result of exposure to symbolic representation.

Definite thought processes are involved in the acquisition of comprehension abilities. At the factual level, the learner utilizes experience plus memory. At the interpretive level, the learner is involved in critical thinking. At the applicative level, the learner utilizes his critical thinking processes plus creative problem-solving to comprehend with substantiation. In interpreting the Taxonomy, each level on the meaning continuum--factual, interpretive, and applicative--crosses into each domain--affective, cognitive, and interactive.

In determining the major level of meaning, the following definitions will be decisive factors:

FACTUAL:	The processor (teacher or child) is concerned solely with content, and any processing will not change the information being handled. The processor does not intellectually manipulate or control the facts, concepts, generalizations, etc., with which he is working.
INTERPRETIVE:	The processor (teacher or child) modifies the content by analyzing, reconstructing, or inferring relationships with little substantiation. No transformation is made on the information.
APPLICATIVE:	The processor (teacher or child) transforms, utilizes, applies, or evaluates the information with substantiation. Transformation of information is demonstrated through application in a new situation.

In determining the domain in which operations occur, the following definitions will be decisive factors:

Affective:	The processor responds with personal judgment and valuing.
Cognitive:	The processor performs an initiating operation (question/comment) dealing with information (facts, concepts, generalizations).
Interactive:	The processor acts upon information when operating in a group (more than one).

In applying the Taxonomy, use the following guidelines:

1. The categorizing of questions, comments, or responses must be viewed within the contextual situation from which they arise; i.e., a teacher's question such as "How did the purple pebble get there?" may be factual (if the information was stated in the text) or interpretive (if the child had to infer the answer from unstated information).

2. Responses or questions within a category or domain are relative to the intellectual ability of the child; i.e., a kindergartner's comment on the applicative level may appear much "weaker" than a third-grader's. Judge responses according to criterion of domain.

3. No inferences should be made of a child's background. Responses must be categorized as "it is," not as you think it was meant to be.

Functioning among or between all levels (factual, interpretive, applicative) are the following questioning strategies:

Focusing (Taba[1]):	The initiating question or statement that begins the discourse unit (a discourse unit refers to all the verbal interaction evolving from and relating to the initiating question or statement) and any attempt to refocus on this initiating lead-in.
Ignoring:	No acceptance is made of the question or response.
Controlling (Taba):	Teacher dominates; teacher handles the cognitive task rather than giving the children an opportunity to do so. EX: TQ That was a really good story, wasn't it? TQ I think Willy made the right choice, don't you? TQ Who would you like to be in the story. . .would you like to be Willy?
Receiving:	An acknowledgment is made but with no elaboration. Receiving may be either positive or negative. If negative, this will be indicated with a (-). Repeating what has been previously stated by either teacher or child (this is a common occurrence) is coded in this category. EX: CR Yeah--I know. TR Right. . .that's good thinking. TR Oh, you think it was Alexander. CR No. . .I don't think so.
Clarifying (Taba):	Explanatory comment/question to redefine previous information. EX: TR Oh, I see what you mean. . .it could have been. . . TQ Could you explain your point again, Eric? CQ Does Eric mean that. . .
Extending (Taba: Guszak[2])	Any attempt to solicit additional information on same subject at same level of comprehension. EX: TQ Anything else you can say about it now? TC Keep going--that sounds interesting. TQ Who has another idea?
Raising:	Any attempt to solicit additional information on same subject at a higher level of comprehension. EX: TQ But why would you especially like to be Alexander? TQ O.K., if that did happen, what kinds of problems do you think you'd have? TQ How come you like this ending best?

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1. Hilda Taba and Freeman F. Elzey, "Teaching Strategies and Thought Processes," Teachers College Record, 1964, 65, pp. 524-534.

2. Frank J. Guszak, "Teacher Questioning and Reading," The Reading Teacher, 1967, 21, pp. 227-234.

The DELTA Comprehension Taxonomy

	Affective	Cognitive
	Operations:	Operations:
	←Experience + Memory→	
FACTUAL	Responding involving personal judgment or valuing without qualification	Stating Repeating Identifying Listing Recalling
	←Critical Thinking→	
INTERPRETIVE	Responding with valuing and judging at the interpretive level but without substantiation	Analyzing Organizing Synthesizing Generalizing
	←Critical Thinking + Creative Problem-Solving→	
APPLICATIVE	Responding with substantiated, critical judgment or valuing	Transforming Utilizing Applying Evaluating

Interactive

Strategies: may function among/between all levels

Focusing
Ignoring
Controlling
Receiving
Clarifying
Extending
Raising

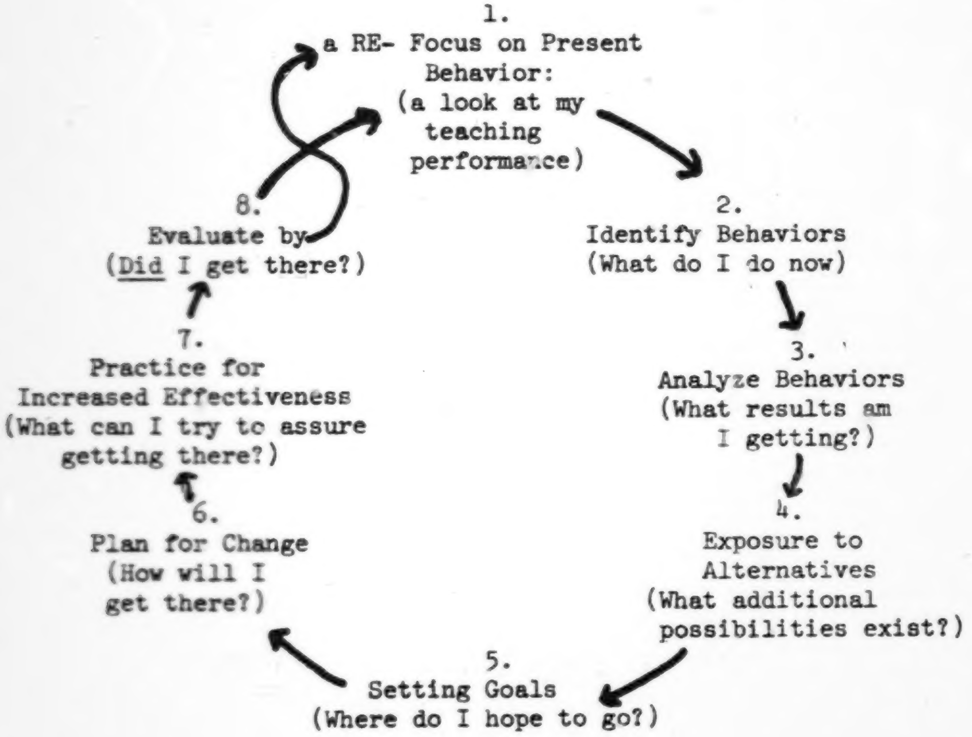
The DELTA Interaction Analysis System (DIAS)

WHY? To focus teacher awareness on

1) Who's doing the talking--teacher or child
2) The function of the talk--question, comment, or response
3) The level of comprehension sought by the questioning or indicated by the response--factual, interpretive, or applicative
4) The strategies being used during the interaction--focusing, receiving, ignoring, controlling, clarifying, extending, and raising

BECAUSE...

a tool that will enable teachers to identify and analyze their own patterns of behavior and the behavior of children while interacting verbally; a tool that will offer information about the frequency of levels of questions and certain questioning strategies; a tool that will offer information as to how a child's responses are handled and "what" leads to "what"...
may be the first step in effecting change in teacher behavior....


1.
a RE- Focus on Present Behavior:
(a look at my teaching performance)
2.
Identify Behaviors
(What do I do now)
3.
Analyze Behaviors
(What results am I getting?)
4.
Exposure to Alternatives
(What additional possibilities exist?)
5.
Setting Goals
(Where do I hope to go?)
6.
Plan for Change
(How will I get there?)
7.
Practice for Increased Effectiveness
(What can I try to assure getting there?)
8.
Evaluate by
(Did I get there?)

1. WHO TALKS?	2. FUNCTION?	3. LEVELS OF COMPREHENSION?	4. STRATEGIES?
Teacher	Question	Factual	Focusing
Child	Comment	Interpretive	Receiving
	Response	Applicative	Ignoring
			Controlling
			Clarifying
			Extending
			Raising

DEFINITIONS:

Levels of Comprehension:

FACTUAL:	The question or response relies solely on experience and memory. The information is not changed. Such operations as recall, stating, identifying, and sequencing fall into this category. Ex: TQ: Could you tell me what happened in the story? CR: (recalls events) TQ: What do you see in this picture? CR: (identifies elements)
INTERPRETIVE:	The question or response calls for critical thinking--the use of judgment. Analyzing, inferring, and predicting fall into this category. The questioner or responder has to modify the content. Ex: TQ: How do you think Willie felt at the end? CR: I think he felt really happy 'cause he had a friend. TQ: Who would you wish to be in the story and why? CR: Willie, 'cause now he's a real mouse.
APPLICATIVE:	The question or response calls for critical thinking and problem-solving. The information is transformed, applied, or evaluated in a new situation with substantiation. Ex: TQ: Suppose you were going to paint a picture to show your feelings when you're happy...why would you use certain colors? CR: I'd use purple because my party dress is purple. TQ: When did something like that happen to you and what did you do about it?

Analyzing Interactive Strategies & Levels of Questions/Responses in a Discourse Unit

VT# ______ Teacher: __________ Lesson: ____________________

Descrip. of Tchng. Sit.: ____________________________

Focusing Question:

1	2	3	4	5	6	7
T C Q C R F I A Foc Ig Con Rec Cl Ex Rs	T C Q C R F I A Foc Ig Con Rec Cl Ex Rs	T C Q C R F I A Foc Ig Con Rec Cl Ex Rs	T C Q C R F I A Foc Ig Con Rec Cl Ex Rs	T C Q C R F I A Foc Ig Con Rec Cl Ex Rs	T C Q C R F I A Foc Ig Con Rec Cl Ex Rs	T C Q C R F I A Foc Ig Con Rec Cl Ex Rs
8	9	10	11	12	13	14
T C Q C R F I A Foc Ig Con Rec Cl Ex Rs	T C Q C R F I A Foc Ig Con Rec Cl Ex Rs	T C Q C R F I A Foc Ig Con Rec Cl Ex Rs	T C Q C R F I A Foc Ig Con Rec Cl Ex Rs	T C Q C R F I A Foc Ig Con Rec Cl Ex Rs	T C Q C R F I A Foc Ig Con Rec Cl Ex Rs	T C Q C R F I A Foc Ig Con Rec Cl Ex Rs

Coding: (Move from left to right)

1. Circle speaker: Teacher or Child
2. Circle Type of Verbalization: Question, Comment, Response
3. Circle Level of Comprehension: Factual, Interpretive, Applicative
4. Circle Strategy (Focusing, Ignoring, Controlling, Receiving, Clarifying, Extending, Raising) as appropriate.
5. Mark ✓ if affective. Jot child's name or initials if desired.

Appendix H

CALIFORNIA SOCIO-ECONOMIC SCALE OF URBAN OCCUPATIONS

THE CALIFORNIA SOCIO-ECONOMIC SCALE OF URBAN OCCUPATIONS

Robert B. Ruddell
Arthur C. Williams
Marilyn J. Williams
Janice Kujawa

The California Socio-Economic Scale of Urban Occupations was designed at the University of California in Berkeley for use in research on the growth and development of children's language. The scale is based on a five-point socio-economic ranking of occupations with one (1) indicating the highest socio-economic rating and five (5) indicating the lowest. The first section of the scale contains an alphabetical listing of occupations with an arabic number (1-to-5) directly beside each occupation. The second section of the scale is categorized by the one-to-five socio-economic ratings. In other words, there is a separate listing of all occupations rated as socio-economic one, a separate listing of all occupations rated as socio-economic two, etc. Thus the reader may glance quickly at this second listing to determine if the scale fits his own needs or if he feels that any particular occupation has been ignored or rated either too high or too low.

To some degree, the current scale was based on the Minnesota Scale for Paternal Occupations* inasmuch as the occupational listings contained in the Minnesota scale were used as a developmental baseline. However, the following major differences exist between the Minnesota scale and the new scale:

1. The California scale uses a five-point range rather than a seven-point range for rating occupations.

2. The California scale adds new occupations (dealing with airlines, data processing, television, etc.) which were not included in the Minnesota scale; i.e., the Minnesota scale was last revised in 1940.

3. The California scale provides multiple rankings (socio-economic 1 through socio-economic 3) for certain occupations such as author and athlete whereas the Minnesota scale rates all persons listing their occupations as author as socio-economic 1 and all professional athletes as socio-economic 3. For example, in the present scale a nationally prominent author would be rated as socio-economic 1, a less well-known author as 2, and a relatively unknown unsuccessful author as 3.

4. The California scale eliminates the category of farmers which was socio-economic 4 in the Minnesota scale and also eliminates various rural occupations such as buyers of grain, foresters, and timber cruisers.

In designing the California scale, an effort was made to avoid using education or lack of education as the sole basis for inclusion in socio-economic categories 1 and 2; because the scale is a socio-economic scale, the individual's income is included as a fundamental characteristic of the ratings. On the other hand, welfare recipients have been viewed in relationship to the educational level in the home rather than merely categorizing all welfare recipients as socio-economic 5.*

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* Minneapolis: Institute of Child Welfare, University of Minnesota.

Several occupations in the socio-economic listing may require the user to have special knowledge of the situation to accurately rate the occupation. For example, an economist has been rated as 2 whereas the head economist at a major bank might be rated as 1; a waiter has been rated as 4 whereas a waiter in a well-known gourmet restaurant might be rated as 3; a truck driver has been rated as 4 whereas the owner-operator of a large rig might be rated as 3. Additional examples of judgments which may have to be made (or have actually been made by the designers of the scale) are as follows:

1. The owner of a major retail establishment would warrant a socio-economic rating of 1 whereas the owner of a corner grocery store would be rated socio-economic 3.

2. Students at colleges or universities have been classified as 3 since at some later point in their lives they will presumable move upward to 1 or 2. Again, this reflects the educational level in the home situation.

3. Persons listing their occupations as unemployed have been categorized as 4. This is not as arbitrary as it may first appear since a skilled worker such as a carpenter or steam-fitter would undoubtedly list his habitual occupation even if he were temporarily unemployed. The basic assumption is that a person listing his occupation as unemployed is chronically unemployed and works periodically at semi-skilled occupations.

In general terms the five-point scale is divided into the following categories:

Socio-Economic 1: Highly trained professionals such as doctors, lawyers, and professors at four-year colleges or universities; relatively unique individuals such as nationally-known writers, painters, musicians, entertainers, and professional athletes; owners of major establishments such as major manufacturing enterprises, well-known gourmet restaurants, or large department stores.

Socio-Economic 2: Less highly trained professionals such as teachers, librarians, researchers, nurses (R.N.), and computer programmers.

Socio-Economic 3: Skilled persons needing a certain amount of education or training such as steam-fitters, plumbers, secretaries, salesmen, vocational nurses (not R.N.), policemen, and firemen.

Socio-Economic 4: Semi-skilled workers such as factory workers, apprentices in craft unions, commercial fishermen, bus drivers, taxi drivers, longshoremen, and practical nurses.

Socio-Economic 5: Unskilled workers such as day laborers, janitors, dishwashers, nurses' aides, and welfare recipients with a high school education or less.

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*The present scale was designed to arrive at the socio-economic status of the children being studied. Thus the input the child receives at home is viewed as 4 if the welfare recipient had one or more years of college education and as 5 if the welfare recipient had a high school education or less.

ALPHABETICAL LISTING OF SOCIO-ECONOMIC CATEGORIES

A

Accountant 2
Accounting Clerk 3
Actor, nationally prominent--stage or cinema 1
Actor, less well known 2
Actor, minor roles 3
Actor, TV nationally prominent 2
Actor, TV minor roles 3
Administrative analyst 2
Advertising, copywriter 3
Advertising, executive 2
Agent, canvasser, or collector 4
Agent--airlines, express, or freight agent 3
Agent, insurance 3
Agent, real estate 3
Air Force (see Military Service)
Airline pilot, co-pilot, or navigator 2
Airline stewardess or cabin attendant 3
Airplane mechanic 3
Antique appraiser or expert 2
Antique dealer 3
Architect, prominent 1
Architect 2
Architects' apprentice 3
Army (see Military Service)
Art store and art materials dealer 3
Artist, nationally prominent 1
Artist, locally prominent 2
Artist, relatively unknown 3
Assayer 2
Athlete, professional well known 1
Athlete, professional less well known 2
Athlete, relatively unsuccessful unknown 3
Attendant, garage or gas station 4
Auctioneer 3
Auditor 2
Author, nationally prominent 1
Author, less well known 2
Author, relatively unknown unsuccessful 3
Automobile assembly-line worker 4
Automobile assembly-line inspector 3
Automobile and accessories dealer 3
Automobile mechanic 3
Automobile dealer 2
Automobile salesman 3

B

Babysitter 5
Baggage handler 5
Baker 3
Bank executive, president or vice-president 1
Bank official 2
Bank teller 3
Barber 3
Bar owner 3
Bar tender 4
Bellboy 5
Bibliographer 3
Bicycle dealer 3
Billiard or poolroom owner 4
Bio-chemist 2
Bio-physicist 2
Boarding-house owner operator 3
Boilermaker 3
Boilermakers' apprentice 4
Bookbinder 3
Bookbinders' apprentice 4
Bookkeeper 3
Book dealer 3
Box maker 4
Brakeman, railroad 4
Brick and stone mason 3
Broker-stock, owner or higher official in major stock house 1
Broker - stock 2
Broker - loan 3
Buffer - metal polisher 4
Building contractor 2
Butcher 3
Bus driver 3
Business agent - union 2

C

Cabinet maker 3
Cafeteria worker 5
Candy store owner 3
Cannery foreman 3
Cannery workers 4
Canvasser or collector 4
Carpenter 3
Carpenters' apprentice 4
Carpet and rug dealer 3
Cashier 3
Caster - metalworker 3
Cemetary worker 4
Charity worker 3
Chauffeur 4
Chef, gourmet restaurant 2
Chef's assistant 3
Chemist 2
Chemical worker, foreman 3
Chemical worker, semi-skilled 4
Child care helper 4
Cinematographer 3
City official 2
Cleaner of clothing, foreman 3
Cleaner of clothing, semi-skilled 4
Cleaner retail establishment 3
Clergyman 1
Clerk, department store, grocery store 3
Clothing dealer or salesman 3
Clothing store owner 3
Coal mine worker 5
Coal, wood, or oil dealer 3
Coder, data processing 3
Coffee dealer 3
Collector or canvasser 4
College president, vice-president, or chancellor 1
College official 2
College professor, four-year college 1
College professor, junior college 2
Commercial or graphic artist 2
Commercial traveler 3
Computer coder or operator 3
Computer programmer 2
Computer programmer assistant 3
Conductor -railroad 3
Conductor - streetcar 4
Conductor - symphony orchestra 1
Confectionary dealer 3
Constable 3
Contractor - building 2
Cook - short order or fast food outlet 4
Coppersmith 3
Corporation executive, major firm
  President 1
  Vice President 1
  Chairman of Board 1
  Board members 1
  Lower Executives 2
County official 2
Crane operator 3
Crockery dealer 3
Curio dealer 3
Custodian 5
Customer service representative--telephone or other business enterprises 3
Cutlery dealer 3

D

Dance hall manager or owner 3
Dancer 3
Data review technician 3
Day laborer 5
Decorator - interior 2
Decorator - window 3
Delicatessen store owner 3
Deliveryman 4
Demonstrator in store 3
Dentist 1
Dental assistant 3
Dental hygienist 2
Department store salesman 3
Designer 2
Detective 3
Die maker 3
Die press operator, semi-skilled 4
Dietician 2
Disability determination counselor 2
Disc jockey 2
Dishwasher 5
Dispatcher - railroad, bus, taxi 3
Dog catcher 4
Draftsman - head, major drafting department 2
Draftsman 3
Drape maker 3
Dress designer 2
Dressmaker 3
Drug and medicine dealer 3
Dry goods dealer 3
Dyer 3

E

Economist 2
Editor of major newspaper or magazine 1
Editor of minor newspaper or magazine 2
Editor of relatively unknown newspaper or magazine 3
Educational specialist 2
Electrical assembly worker, semi-skilled 4
Electrical supply dealer 3
Electrician 3
Electricians' apprentice 4
Electronics technician 3
Electrotyper 3
Elevator operator 5
Employment office worker or representative 3
Enameler 3
Engineer - chemical, civil, construction, electrical 2
Engineer - locomotive 3
Engineer - mechanical or mining 2
Engineer - stationary 3
Engineers' assistant 4
Engraver 3
Entertainer, professional well known 1
Entertainer, professional less well known 2
Entertainer, relatively unsuccessful unknown 3
Equipment operator - construction 3
Equipment driver - forklift 4
Errand boy 5
Escrow officer 2
Estimator 2
Express messenger 5
Eye specialist (M.D.) 1

F

Farm produce buyer or dealer 3
Filer or grinder in metal shop, semi-skilled 4
Film editor 2
Firefighter, semi-skilled 4
Fireman, captain or above 2
Fireman 3
Fisherman, commercial 4
Floorwalker in department store 3
Florist 3
Foreman - construction, laundry, manufacturing, transportation, warehouse 3
Form designer - business forms, etc. 3
Forest ranger, requiring college education 2
Forest service worker 3
Foundry worker, semi-skilled 4
Freight accounting clerk 3
Freight agent 3
Fruit dealer 3
Furnace repairman 3
Furniture, owners of large retail establishment 2
Furniture dealer or salesman 3
Fur dealer 2

G

Garage owner or manager 3
Garbageman 5
Gardener 4
Gas station attendant 4
Gas or electric installer of furnaces, stoves, etc. 3
Gas or electric appliance dealer 3
General store dealer 3
Glass dealer 3
Glazier 3
Glaziers' apprentice 4
Graphic or commercial artist 2
Grinder - metal polisher, semi-skilled 4
Grocery dealer 3
Guard, doorkeeper, watchman 4

H

Hairdresser 3
Hardware dealer 3
Hotel manager 2
Housekeeper 4

I

Importer and exporter, quality merchandise 2
Inhalation therapist 2
Inspector - city and county 3
Inspector - state 2
Inspector - telephone and telegraph 3
Instructor or teacher, junior college 2
Instrument manufacturer 3
Insurance underwriter 2
Insurance agent or salesman 3
Insurance official 2
Interior decorator 2
Inventor of prominent item 1

J

Janitor 5
Jeweler 2
Jewelers' apprentice 3
Jeweler - owner of large, reputable establishment 1
Judge 1
Junk dealer 4
Justice of peace 2

K

Keypunch operator 3
Kitchen worker 5

L

Laboratory assistant 3
Laboratory technician 3
Landscape architect 2
Landscape gardener - skilled 3
Landscape gardener - semi-skilled 4
Laundry owner 3
Laundry foreman 3
Laundry worker 4
Lawyer 1
Librarian 2
Library assistant 3
Lineman - telephone and telegraph 3
Linotyper 3
Lithographer 3
Loan broker 3
Loan company (president, vice-president), large firm 1
Loan company official, large firm 2
Loan company agent 3
Locksmith 3
Longshoreman 4

M

Machine operator 4
Machinist 3
Machinists' apprentice 4
Maid 5
Mail carrier 3
Mail clerk 3
Manicurist 4
Manager - warehouse 3
Manager - laundry 3
Manager - telephone or telegraph 2
Manager - theater 3
Manufacturing official 2
Manufacturing - foreman, manager, or superintendent 3
Mason - stone 3
Masons' apprentice 4
Material handler 4
Meat cutter 4
Meat dealer 3
Meat wrapper 4
Mechanic - manufacturing 3
Merchant seaman 4
Messenger boy 5
Metallurgist 2
Metermaid 4
Metal polisher, semi-skilled 4
Milk dealer 3
Military - general or admiral 1
Military - major through colonel 2
Military - lieutenant through captain 3
Military - enlisted 4
Mimeograph operator 4
Molder - metal, semi-skilled 4
Mortuary owner 2
Mortician 3
Movers' helper 5
Mover - household 4
Multilith operator 4
Music store owner or manager 3
Musical instrument dealer 3
Musician - professional concert performer 1
Musician - professional less well known 2
Musician - professional, relatively unsuccessful 3

N

Navy (see Military Service)
News-stand dealer 4
Newsboy 5
Notions dealer 3
Novelty dealer 3
Nurseryman 3
Nurses' aid 5
Nurse - practical 4
Nurse - vocational 3
Nurse - registered 2
Nurse - supervisor 2

O

Occulist (M.D.) 1
Office girl or boy 4
Official - U.S. government 2
Official - U.S. government higher positions 1
Oil refinery technician 3
Oil or gas station attendant 4
Oiler of machinery, semi-skilled 4
Operating engineer, industrial with no college degree 3
Operations officer 2
Optical dealer 2
Optometrist 2
Owner - large establishment in retail business 2
Owner of major resort, theater, restaurant, hotel, motel, etc. 1
Owner - small retail establishment 3
Owner of small resort, theater, restaurant, hotel, motel, etc. 3

P

Packer, semi-skilled 4
Paint and wallpaper dealer 3
Painter 3
Painters' apprentice 4
Paper hanger 3
Paper hangers' apprentice 4
Park worker, semi-skilled 4
Parking lot attendant 5
Pattern maker 3
Pawnbroker 3
Peddler 5
Personnel administrator 2
Personnel evaluator 2
Pharmacist 2
Photographer for major newspaper, magazine 2
Physician 1
Physicians' and surgeons' attendant 3
Piano or organ tuner 3
Pipe fitter 3
Pipefitters' helper 4
Plasterer 3
Plasterers' apprentice 4
Plumber 3
Plumbers' apprentice 4
Policeman, captain or above 2
Policeman 3
Poolroom or billiard owner 4
Pollution control expert (college degree) 2
Pollution control assistant 3
Porter - domestic or professional servant 5
Postmaster 2
Poster printer 3
President - college 1
President - corporation 1
Pressman - printing 3
Principal 2
Printers' apprentice 4
Probation officer 2
Produce dealer 3
Professor - four-year college or university 1
Professor - junior college 2
Proofreader 3
Psychiatric social worker 2
Publisher of major newspaper or magazine 1
Publisher of minor newspaper or magazine 2
Publisher of relatively unknown newspaper or magazine 3

R

Rag dealer 5
Real estate - owner or official of large firm 2
Real estate salesman 3
Receptionist 3
Religious worker 2
Repairman - TV, stove, refrigerator, etc. 3
Reporter for major newspaper or magazine 2
Reporter on small newspaper or magazine 3
Research planner 2
Research assistant 3
Research analyst 2
Restaurant owner 3
Retail dealer - small independent establishment 3
Retail dealer - major department store or establishment 2
Retail dealer - rags or junk 4
Roofer 3
Roofers' apprentice 4

S

Sales manager in major department store 2
Salesman 3
Sculptor - professional well known 1
Sculptor - less well known 2
Sculptor - relatively unsuccessful unknown 3
Seamstress 3
Secretary 3
Servant 5
Sexton 3
Sheet metal worker, semi-skilled 4
Sheriff-county 2
Sheriffs' deputy 3
Shipping clerk 4
Shoemaker 3
Shoe-shiner 5
Silk screen printer 3
Stage hand 4
Statistical clerk 3
Steamfitter 3
Steamfitters' apprentice 4
Stenographer 3
Stevedore 4
Stockbroker 2
Stockboy 4
Stock clerk 4
Store helper 4
Street cleaner (machine operator) 4
Street sweeper 5
Structural iron worker 3
Superintendent - school system 2
Superintendent - manufacturing, large factory or job 2
Surgeon 1
Surveyor 2
Switchman - railroad 4
Systems analyst 2

T

Tailor 3
Tax examiner 2
Taxi driver 4
Teacher 2
Teachers' aid 3
Teamster 4
Technical writer or editor 2
Telegraph and telephone lineman 3
Telegraph operator 3
Telephone official 2
Telephone Operator 3
Television repairman 3
Television retail store owner 2
Theater owner or manager 3
Theater usher 5
Ticket and station agent 3
Toll collector 4
Toolmaker 3
Travel agent 3
Travel agency owner 2
Traveling salesman 3
Truant officer 2
Truck dispatcher 3
Truck driver 4
Typesetter 3
Typist 3

U

Unemployed 4
Undertaker 3
Underwriter, insurance 2
U.S. government official 2
U.S. government high official 1
Upholsterer 3

V

Variety store owner 3
Vending company dealer 3
Vending machine stocker 4
Veterinary surgeon 2

W

Waiter or waitress 4
Warden of large penal institution 2
Warehouseman 4
Wallpaper and paint dealer 3
Watchmaker 3
Watchmakers' apprentice 4
Welder 3
Welders' apprentice 4
Welfare worker 2
Welfare recipient, with one or more years of college education 4
Welfare recipient, with high school education or less 5
Wholesale dealer 2
Window dresser 3

X

Xerox operator 4
X-ray technician (supervisor, hospital) 2
X-ray technician 3

Y

Yardman, in junk yard or autowrecking yard 5

SOCIO-ECONOMIC 1

Actor, nationally prominent--stage or cinema
Architect, prominent
Artist, nationally prominent
Athlete, professional well known
Author, nationally prominent

Bank executive, president or vice-president
Broker--stock, owner or higher official in major stock house

Clergyman
College president, vice-president, or chancellor
College professor, four-year college
Conductor - symphony orchestra
Corporation executive, major firm, president
Corporation executive, major firm, vice president
Corporation executive, major firm, chairman of board
Corporation executive, major firm, board members

Dentist

Editor of major newspaper or magazine
Entertainer, professional well known
Eye specialist (M.D.)

Inventor of prominent item

Jeweler - owner of large, reputable establishment
Judge

Lawyer
Loan company (president, vice president), large firm

Military - general or admiral
Musician - professional concert performer

Occulist (M.D.)
Official - U.S. government higher positions
Owner of major resort, theater, restaurant, hotel, motel, etc.

Physician
President - college
President - corporation
Professor - four-year college or university
Publisher of major newspaper or magazine

Sculptor - professional well known
Surgeon

U.S. government high official

SOCIO-ECONOMIC 2

Accountant
Actor, less well known
Actor, TV nationally prominent
Administrative analyst
Advertising, executive
Airline pilot, co-pilot, or navigator
Antique appraiser or expert
Architect
Artist, locally prominent
Assayer
Athlete, professional less well known
Author, less well known
Auditor
Automobile dealer

Bank official
Bio-chemist
Bio-physicist
Broker - stock
Building contractor
Business agent - union

Chemist
Chef, gourmet restaurant
City official
College official
College professor, junior college
Commercial or graphic artist
Computer programmer
Contractor - building
Corporation executive, major firm, lower executives
County official

Decorator - interior
Dental hygienist
Designer
Dietician
Disability determination counselor
Disc jockey
Draftsman - head, major drafting department
Dress designer

Economist
Editor of minor newspaper or magazine
Educational specialist
Engineer - chemical, civil, construction, electrical
Engineer - mechanical or mining
Entertainer, professional less well known
Escrow officer
Estimator

Socio-Economic 2 (continued)

Film editor
Fireman, captain or above
Forest ranger, requiring college education
Furniture, owners of large retail establishment
Fur dealer

Graphic or commercial artist

Hotel manager

Importer and exporter, quality merchandise
Inhalation therapist
Inspector - state
Instructor or teacher, junior college
Insurance underwriter
Insurance official
Interior decorator

Jeweler
Justice of peace

Landscape architect
Librarian
Loan company official, large firm

Manager - telephone or telegraph
Manufacturing official
Metallurgist
Military - major through colonel
Mortuary owner
Musician - professional less well known

Nurse - registered
Nurse - supervisor

Official - U.S. government
Operations officer
Optical dealer
Optometrist
Owner - large establishment in retail business

Personnel administrator
Personnel evaluator
Pharmacist
Photographer for major newspaper, magazine
Policeman, captain or above
Pollution control expert (college degree)
Postmaster
Principal
Probation officer
Professor - junior college
Psychiatric social worker
Publisher of minor newspaper or magazine

Socio-Economic 2 (continued) -4-

Real estate - owner or official of large firm
Religious worker
Reporter for major newspaper or magazine
Research planner
Research analyst
Retail dealer - major department store or establishment

Sales manager in major department store
Sculptor - less well known
Sheriff - county
Stockbroker
Superintendent - school system
Superintendent - manufacturing, large factory or job
Surveyor
Systems analyst

Tax examiner
Teacher
Technical writer or editor
Telephone official
Television retail store owner
Travel agency owner
Truant officer

Underwriter, insurance
U.S. government official

Veterinary surgeon

Warden of large penal institution
Welfare worker
Wholesale dealer

X-ray technician (supervisor, hospital)

SOCIO-ECONOMIC 3

Accounting clerk
Actor, minor roles
Actor, TV minor roles
Advertising, copywriter
Agent--airlines, express, or freight agent
Agent, insurance
Agent, real estate
Airline stewardess or cabin attendant
Airplane mechanic
Antique dealer
Architects' apprentice
Art store and art materials dealer
Artist, relatively unknown
Athlete, relatively unsuccessful unknown
Auctioneer
Author, relatively unknown unsuccessful
Automobile assemble-line inspector
Automobile and accessories dealer
Atuomobile mechanic
Automobile salesman

Baker
Bank teller
Barber
Bar owner
Bibliographer
Bicycle dealer
Boarding-house owner operator
Boilermaker
Bookbinder
Bookkeeper
Book dealer
Brick and stone mason
Broker - loan
Butcher
Bus driver

Cabinet maker
Candy store owner
Cannery foreman
Carpenter
Carpet and rug dealer
Cashier
Caster-metalworker
Charity worker
Chef's assistant
Chemical worker, foreman
Cinematographer
Cleaner of clothing, foreman
Cleaner retail establishment
Clerk, department store, grocery store

Socio-Economic 3 (continued)

Clothing dealer or salesman
Clothing store owner
Coal, wood, or oil dealer
Coder, data processing
Coffee dealer
Commercial traveler
Computer coder or operator
Computer programmer assistant
Conductor - railroad
Confectionary dealer
Constable
Coppersmith   ADD: Crane operator
Crockery dealer
Curio dealer
Customer service representative--telephone
   or other business enterprises
Cutlery dealer

Dance hall manager or owner
Dancer
Data review technician
Decorator - window
Delicatessen store owner
Demonstrator in store
Dental assistant
Department store salesman
Detective
Die maker
Dispatcher - railroad, bus, taxi
Draftsman
Drape maker
Dressmaker
Drug and medicine dealer
Dry goods dealer
Dyer

Editor of relatively unknown newspaper or magazine
Electircal supply dealer
Electrician
Electronics technician
Electrotyper
Employment office worker or representative
Enameler
Engineer - locomotive
Engineer- stationary
Engraver
Entertainer, relatively unsuccessful unknown
Equipment operator - construction

Socio-Economic 3 (continued)

Farm produce buyer or dealer
Fireman
Floorwalker in department store
Florist
Foreman - construction, laundry, manufacturing, transportation, warehouse
Form designer - business forms, etc.
Forest service worker
Freight accounting clerk
Freight agent
Fruit dealer
Furnace repairman
Furniture dealer or salesman

Garage owner or manager
Gas or electric installer of furnaces, stoves, etc.
Gas or electric appliance dealer
General store dealer
Glass dealer
Glazier
Grocery dealer

Hairdresser
Hardward dealer

Inspector - city and county
Inspector - telephone and telegraph
Instrument manufacturer
Insurance agent or salesman

Jewelers' apprentice

Keypunch operator

Laboratory assistant
Laboratory technician
Landscape gardener - skilled
Laundry owner
Laundry foreman
Library assistant
Lineman - telephone and telegraph
Linotyper
Lithographer
Loan broker
Loan company agent
Locksmith

Socio-Economic 3 (continued)

Machinist
Mail carrier
Mail clerk
Manager - warehouse
Manager - laundry
Manager - theater
Manufacturing - foreman, manager, or superintendent
Mason - stone
Meat dealer
Mechanic - manufacturing
Milk dealer
Military - lieutenant through captain
Mortician
Music store owner or manager
Musical instrument dealer
Musician - professional, relatively unsuccessful

Notions dealer
Novelty dealer
Nurseryman
Nurse - vocational

Oil refinery technician
Operating engineer, industrial with no college degree
Owner - small retail establishment
Owner of small resort, theater, restaurant, hotel, motel, etc.

Paint and wallpaper dealer
Painter
Paper hanger
Pattern maker
Pawnbroker
Physicians' and surgeons' attendant
Piano or organ tuner
Pipe fitter
Plasterer
Plumber
Policeman
Pollution control assistant
Poster printer
Pressman - printing
Produce dealer
Proofreader
Publisher of relatively unknown newspaper or magazine

Real estate salesman
Receptionist
Repairman - TV, stove, refrigerator, etc.
Reporter on small newspaper or magazine
Research assistant
Restaurant owner
Retail dealer - small independent establishment
Roofer

Socio-Economic 3 (continued)

Salesman
Sculptor - relatively unsuccessful unknown
Seamstress
Secretary
Sexton
Sheriffs' deputy
Shoemaker
Silk screen printer
Statistical clerk
Steamfitter
Stenographer
Structural iron worker

Tailor
Teachers' aide
Telegraph and telephone lineman
Telegraph operator
Telephone operator
Television repairman
Tehater owner or manager
Ticket and station agent
Toolmaker
Travel agent
Traveling salesman
Truck dispatcher
Typesetter
Typist

Undertaker
Upholsterer

Variety store owner
Vending company dealer

Wallpaper and paint dealer
Watchmaker
Welder
Window dresser

X-ray technician

SOCIO-ECONOMIC 4

Agent, canvasser, or collector
Attendant, garage or gas station
Automobile assembly-line worker

Bar tender
Billiard or poolroom owner
Boilermakers' apprentice
Bookbinders' apprentice
Box maker
Brakeman, railroad
Buffer - metal polisher

Cannery workers
Canvasser or collector
Carpenters' apprentice
Cemetary worker
Chauffeur
Chemical worker, semi-skilled
Child care helper
Cleaner of clothing, semi-skilled
Collector or canvasser
Conductor -streetcar
Cook - short order or fast food outlet

Deliveryman
Die press operator, semi-skilled
Dog catcher

Electrical assembly worker, semi-skilled
Electricians' apprentice
Engineers' assistant
Equipment driver - forklift

Filer or grinder in metal shop, semi-skilled
Firefighter, semi-skilled
Fisherman, commercial
Foundry worker, semi-skilled

Gardener
Gas station attendant
Glaziers' apprentice
Grinder - metal polisher, semi-skilled
Guard, doorkeeper, watchman

Housekeeper

Junk dealer

Landscape gardener - semi-skilled
Laundry worker
Longshoreman

Socio-Economic 4 (continued)

Machine operator
Machinists' apprentice
Manicurist
Masons' apprentice
Material handler
Meat cutter
Meat wrapper
Merchant seaman
Metermaid
Metal polisher, semi-skilled
Military - enlisted
Mimeograph operator
Molder - metal, semi-skilled
Mover - household
Multilith operator

News-stand dealer
Nurse - practical

Office boy or girl
Oil or gas station attendant
Oiler of machinery, semi-skilled

Packer, semi-skilled
Painters' apprentice
Paper hangers' apprentice
Park worker, semi-skilled
Pipefitters' helper
Plasterers' apprentice
Plumbers' apprentice
Poolroom or billiard owner
Printers' apprentice

Retail dealer - rags or junk
Roofers' apprentice

Sheet metal worker, semi-skilled
Shipping clerk
Stage hand
Steamfitters' apprentice
Stevedore
Stockboy
Stock clerk
Store helper
Street cleaner (machine operator)
Switchman - railroad

Taxi driver
Teamster
Toll collector
Truck driver

Socio-Economic 4 (continued)

Unemployed

Vending machine stocker

Waiter or waitress
Warehouseman
Watchmakers' apprentice
Welders' apprentice
Welfare recipient, with one or more years of college education

Xerox operator

SOCIO-ECONOMIC 5

Babysitter
Baggage handler
Bellboy

Cafeteria worker
Coal mine worker
Custodian

Day laborer
Dishwasher

Elevator operator
Errand boy
Express messenger

Garbageman

Janitor

Kitchen worker

Maid
Messenger boy
Movers' helper

Newsboy
Nurses' aide

Parking lot attendant
Peddler
Porter - domestic or professional servant

Rag dealer

Servant
Shoe-shiner
Street sweeper

Theater usher

Welfare recipient, with high school education or less

Yardman, in junk yard or autowrecking yard

Appendix I

DECODING OBSERVATIONAL CHECKLIST

DECODING OBSERVATIONAL CHECKLIST

Introduction

This instrument has been designed to provide the teacher or observer with a means of keeping track of the teaching-learning lesson and behavior in a decoding lesson or situation. It lays stress on the three main divisions for developing decoding skills: (a) the content the teacher is presenting to the children, (b) the generalizations needed for word analysis, and (c) the decoding strategies that children use when they are in a reading situation. These components have been separated to focus the teacher's attention on the learning that a child undertakes in mastering decoding skills. These components have usually been included in one lesson, but there is some merit in considering them separately.

Definitions

Decoding Content (I) consists of the factual knowledge that a child learns about the graphemic system and its application in deriving generalizations and decoding strategies. With this knowledge he operates upon the graphemic symbols of printed materials--he decodes.

Generalizations (II) are those rules or principles enabling a reader to analyze words into simpler elements in order to facilitate recognition and pronunciation (see the article: "Usefulness of Phonic Generalizations").

Decoding Strategies (III) are those cognitive activities a child brings into play when confronted with graphemic material he must read. These are the processes he uses to convert the written material into its phonological counterpart.

Instructional Strategy refers to the logical processes the teacher uses to develop a lesson. The two main processes are identified as deductive and inductive. A deductive strategy is used when the teacher structures the material, formulates for the child the concept or generalization to be learned, and provides instances for the child's utilization and practice. An inductive strategy is used when the teacher selects the material to be used; the concept of generalization is formulated by the child following a line of questioning by the teacher. Instances of the concept or generalization are also provided for utilization and practice.

Interactive Direction has a number of dimensions that are important and also necessary to be cognizant of when using this instrument. It is designed to follow the three lesson types (Content, Generalization, and Decoding Strategy) that a teacher would focus upon in teaching decoding skills. A second use is to tabulate cognitive and interactive strategies used by the teacher as defined in the DELTA Taxomony. These same components also may be viewed as a basis for determining what learning strategies a pupil uses as he processes the information encountered in the teacher's instructional milieu.

Learning Strategies are those cognitive processes that a pupil uses as he processes information experienced in a teaching-learning situation. This may prove to be identical with the child's cognitive style.

Procedures for Utilization

The left half of the instrument is designed to keep track of what the teacher is presenting for the children to learn. It consists of one column labeled Decoding Content (I); four columns labeled Lesson, Content, Generalization (II); and Decoding Strategy respectively; and one column labeled Decoding Strategies (III). The Decoding Content (I) and the

Decoding Strategies (III) are placed in a rough one-to-one or one-to-many correspondence. This should provide the teacher with a sharper focus on the skills needed by a child to decode successfully.

The column labeled Lesson is checked at the appropriate box opposite the Decoding Content and/or Decoding Strategy. If the lesson is only to be focused on a particular concept, e.g., "root words," the box opposite "root words" is checked for lesson and content. If the lesson is to include content, generalization, and decoding strategy, all four boxes opposite "root words" are checked. This indicates the main focus of the lesson will be on all three components of decoding skills. If other content, generalizations, and decoding strategies are introduced, the appropriate boxes are also checked to indicate what they were. However, the column labeled Lesson is checked only once to indicate what the lesson is to be. A large number of checks in other boxes may mean that the major objective was not kept in focus. The teacher determines this as he reviews the lesson.

The Decoding Strategies (III) can also be used to record the strategies the pupils use when confronted with a reading situation. The column labeled Pupil(s) is checked whenever a child uses a particular strategy. This section gives a general view of the decoding strategies the class uses but not an individual child. If more than one child is included in the lesson--and you are only interested in decoding strategies--the columns labeled Lesson, etc., might be used to record the information. The space in the lower left-hand corner is to be used for listing the specific content, generalization, or decoding strategy being taught in the lesson.

The top right half of the instrument is designed to record instructional strategies and interactive direction. On the lines labeled

Deductive and Inductive a short statement is written as to the general orientation of the lesson. This indicates what strategy the teacher felt was needed for the lesson or the logic of his particular instructional style follows. This information should prove valuable to the teacher as one means of answering the question, "What instructional strategies match the teaching materials needed to insure the learning of decoding skills?" The particular lesson is checked as to content, generalization, or decoding strategy in the appropriate box or boxes.

The Interactive Direction section is used to tabulate teaching patterns in one or more ways depending on the teacher's or observer's purpose. Simple tally marks can be used to code the number of times various strategies were used by a teacher. This will give an indication of the levels of questioning used most frequently by the teacher. An attempt can be made to code each question (Q) or statement (S) according to its logic and level, i.e., deductive (d)/inductive (i). This would be difficult to do unless there was a clear indication of the logic of the instructional strategy from the outset of the lesson. If a teacher is interested in the interaction of teacher and pupils, this information can be gained by using the "Analyzing Interactive Strategies in a Discourse Unit" scale and the DELTA taxonomy.

The titles indicating the levels of interactive strategies are arranged according to the "DELTA Taxonomies of Comprehension Abilities and Interactive Strategies" with a few modifications.

Line 1, Initiating, is used to indicate the manner in which the teacher begins the lesson. One or two words indicating how the teacher began the lesson would be noted here.

Line 2, Factual, includes the stating, repeating, identifying, listing, recalling, holding, and requesting categories of the DELTA taxonomy. It is tallied when the teacher focuses attention on the elements (sounds, letters, words, etc.) used to develop the lesson.

Example: Read these words.
What letter is the same in each of these words?
Where do you see the letter?

Line 3, Examining, through Line 9, Generalizing, constitute the interpretive levels of the Interactive Strategies. At these levels the teacher modifies the "facts" by analyzing, reconstructing, or inferring relationships.

Line 3, Examining, includes checking, distinguishing, inspecting, and detecting information for exploring relationships within the factual information of the lesson.

Example: What sound does this vowel make in this word? In this one? In this one?
Is there any clue to why these letters all make this sound?

Line 4, Clarifying, indicates a comment or a requestioning on a response to better define the idea. This may indicate the concept has not been fully formed by the pupils.

Example: Say the words again.
What sounds do these letters all make?

Line 5, Furthering, is used with one child to develop his idea. There is no problem with understanding his thought but the questions and/or statements are designed to probe more deeply for relationships and/or substantiation.

Example: What sound did you say this letter makes?
When does this letter make this sound?
Is this the only sound this letter makes?
Why doesn't it make this other sound in these words?

Line 6, Chaining, indicates the establishment of relationships between the questions, comments, and responses of the participants. It helps to tie the information together to insure that all the pupils are comprehending the lesson.

Example: Do you agree that this letter has this sound in this word? Why?

What do you see in all these words that has that sound? Why does it?

Line 7, Summarizing, is used to review the salient points of what has taken place so that the parts can be unified and readied for the formulation of the concept, generalization or a review of the concept or generalization if a deductive strategy has been employed.

Example: Say the words again.

What sounds do the letters make?

Where are the letters located?

Does the letter make this sound when it is in this place in the word?

When does this letter represent the sound that it has in this word?

Line 8, Conceptualizing, is not a specific interactive strategy except in the broad sense of resulting from the interaction with the information discussed by the group. It is included at this point to focus upon the concept that is being developed. At some point, usually, following summarizing a child will formulate the concept being taught. This may not remain clear to him for long since the forgetting curve takes its toll, but at some point in a lesson the observer or teacher feels that a certain question or statement brought forth the concept the child has been working out.

Example: Who can tell me what he knows from this?

When a word begins with this letter, what do we know about its sound?

Line 9, Generalizing, is tallied when the questions or comments establish the general statements and principles that the lesson is focusing upon.

Example: Is there a reason this letter makes this sound in these words?

What does this letter say when you have words that begin this way?

When does this letter represent the sound in this word?

Lines 8 and 9, Conceptualizing and Generalizing, are the end of the interpretive section of the Interactive Direction. Line 8, Conceptualizing, is used at the end of a content lesson when the concept has been formulated. Line 9, Generalizing, is used at the end of a generalization lesson when the generalization has been formulated.

Lines 10, 11, and 12, Analyzing, Organizing, and Synthesizing, are reserved for a Decoding Strategy lesson. These focus on the strategies used when a child is being taught specific dedoding strategies. Other lines may be tabulated if needed, but the main focus will be on lines 10, 11, and 12.

Line 10, Analyzing, is used when the teacher has the child examine words for content and components of his decoding strategies by focusing attention upon them.

Example: Do you recognize any parts in the word?

What does the word begin with?

How will it start?

Line 11, Organizing, consists of ordering or grouping the elements of the words in order to analyze or to make a synthesis.

Example: What do you look at first when you don't know a word?

If you can't figure out that part, what else do you look for?

Line 12, Synthesizing, is used when the questions or statements are directed towards having the child combine the word elements into a possible whole both morphologically and semantically.

Examples: Say this part and this part.
Now put those parts together and say them.

Lines 13 and 14, Utilizing and Assessing, constitute the Applicative level of the DELTA taxonomy.

Line 13, Utilizing, indicates that a child is manipulating or transforming information, concepts, generalizations, and principles in order to arrive at possible solutions to decoding problems.

Examples: If you come to a word having this letter in this position (environment), what sound will you try first?

Line 14, Assessing, is used when the teacher is asking questions triggering critical evaluation of solutions, their consequences and the consideration of alternative interpretations and solutions.

Examples: When does this letter represent this sound in this word?
When does this letter represent another sound?
How will you know when to use this letter sound in a word?

The Interactive Direction section is flexible and should be used to meet the need of the teacher. It is designed to give only gross indications of the instructional and interactive strategies utilized by a teacher. The factual, interpretive, and applicative dimensions of the DELTA taxonomy are matched with lines 2, 3-9, and 13-14 respectively. Lines 10-12 are included for the tabulation of decoding strategy lessons only. They may, however, be matched with the cognitive domain at the interpretive level of the taxonomy.

The remainder of the instrument provides a small amount of room for writing comments about the lesson as a whole. The titles of the sections are clear enough as to their uses. Space has been left for the teacher to list the number of pupils he is working with on the line indicated for Organization. Learning strategies have not been clearly identified but the space can be used if it is apparent how a pupil is processing the information he confronts in the lesson.

Alternative Uses

1. The instrument can be used to give a teacher an overall impression of a lesson, including:

   a) the sharpness of focus on the main emphasis of the lesson to be learned

   b) the amount of material covered vs. that intended

   c) the direction and levels of instructional and interaction strategies

   d) an awareness of changes that can be made to increase the teaching effectiveness of the content, generalizations, and decoding strategies

   e) the opportunity to evaluate the effectiveness of his instructional and interactive strategies and the knowledge the pupils have mastered.

2. The content and decoding strategy section of the instrument can be reorganized to use with individual children as a redord of their mastery of content and decoding skills.

3. The Interactive Direction section can be used to tally more carefully the strategies a teacher uses if attention is only directed to the questions and statements of the teacher.

It is important to note that the major value of this instrument is to record as much information of a decoding lesson as possible for the teacher's analysis of her instructional procedures and objectives.

Decoding Checklist

	I Decoding Content	Lesson--T	Content	General- ization II	Decoding Strategy	III Decoding Strategies	Pupil(s)
	auditory discrimination					recognizes letter sounds	
	visual discrimination					recognizes letter forms	
	tactile?					traces forms	
	sight vocabulary					associates from memory	
	picture clues					organizes meaning	
WORD FORM	general characteristics					attends to shape of word	
	special characteristics					attends to distinctive letters	
PHONIC ELEMENTS	vowels (position)					blends c&v sounds	
	vowel dipthongs					corresponds sounds with graphemes	
	vowel digraphs						
	consonants(I,M,F)					substitutes consonant sounds by position (I,M,F)	
	consonant blends						
	consonant digraphs						
STRUCTURAL ELEMENTS	phonograms					recognizes & pronounces parts of larger words	
	smaller words in larger words						
	compound words						
	root words(stem)					analyzes larger words	
	prefixes					recognizes affixes	
	suffixes						
	derivatives					determines grammatical use	
	inflectional endings						
	syllables					facilitates pronunciation	
	accent					determines vowel sounds	
	letter patterns (CVC, CVVC)					corresponds sounds	
	contractions					recognizes contr.	

Teacher

Instructional Strategy: Deductive/Inductive

Deductive

Inductive

			I Content		II Generalization		III Decoding Strategy
INTERACTIVE DIRECTION	1) Init.	Q					
		S					
	2) Factual	Q					
		S					
	3) Exam.	Q					
		S					
	4) Chain.	Q					
		S					
	5) Furth.	Q					
		S					
	6) Clarif.	Q					
		S					
	7) Summar.	Q					
		S					
	8) Concept.	Q					
		S					
	9) General.	Q					
		S					
	10) Analyz.	Q					
		S					
	11) Organiz.	Q					
		S					
	12) Synth.	Q					
		S					
	13) Util.	Q					
		S					
	14) Assess.	Q					
		S					

Code interactive direction (d) deductive (i) inductive

Decoding Checklist (cont.)

CONTEXT	concept association with words					anticipates meaning	
	definition in the passage					uses redundancy	
	experience (1&b)					predicts words	
	comparison or contrast					moves from known to unknown	
	synonym					finds meaning by repetition of meaning	
	common language patterns					anticipates words	
	summary					relates prior words to unknown words	
	mood or situation					reflects to narrow range of possibilities	
syntactic constraints						recognizes cues	
semantic constraints						attends to features	
INTONATION OF SENTENCE	pitch					anticipates meaning?!.	
	stress					anticipates pronunciation	
	juncture					keeps meaning clear	
articulation of phonemes						recognizes position for sound clue	
						attends in a gross sense to material--translation, SE-NSE	
						fixates on word--points of focus L-R, R-L, significant elements	
						uses auditory imagery or memory	
						spells out word	

DEVELOPING EXCELLENCE
U. C.
PROJECT
DELTA
IN LITERACY
TEACHING ABILITIES

ORGANIZATION	Whole Group	Small Group	Individual	Team

MATERIALS

CLASSROOM MANAGEMENT

CHILD LEARNING PROBLEMS

VARIATIONS IN TEACHING - COMMENTS

LEARNING STRATEGIES

Appendix J

TEACHER QUESTIONNAIRE

This questionnaire is to be anonymous.

ASSESSMENT OF DELTA TEACHER TRAINING MODEL

Institute

1. The summer institute was
   - a. tedious and uninteresting.
   - b. sporadic, containing a mixture of relevant and irrelevant information.
   - c. interesting, containing information relevant to the reading-language program.

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2. The summer institute was
   - a. generally a valuable experience.
   - b. of minimal value.

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3. The summer institute did feed well into
   - a. Comprehension
   - b. Decoding
   - c. Literature
   - d. Oral and Written Language

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4. The summer institute did not feed well into
   - a. Comprehension
   - b. Decoding
   - c. Literature
   - d. Oral and Written Language

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5. In reference to ideas received from the speakers -- ideas which you then applied in your classroom, please rank the institute consultants from 1 (high) to 9 (low).
   - a. Alan Dundes
   - b. Dolores Durkin
   - c. Kenneth Johnson
   - d. Walter Loban
   - e. Sara Lundsteen
   - f. Constance McCullough
   - g. Lorraine Morgan
   - h. Virginia Reid
   - i. Russell Stauffer

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6. During the summer institute, my attitude toward DELTA was positive negative

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7. At present my attitude toward DELTA is positive negative

8. If I were planning a summer institute for the transfer of DELTA to another school, the length of the institute would be — one week — two weeks — three weeks — four weeks

9. If I were planning a summer institute, I would recommend that the format be
    a. the same as it was last summer.
    b. a mixture of consultants and workshops, with the speakers and workshops on alternate days.
    c. other (please specify).

10. At the beginning of the project, communication between DELTA and the Washington staff was — excellent — good — fair — poor

11. At the present communication between DELTA and the Washington staff is — excellent — good — fair — poor

Transfer Potential

12. If Washington School were funded as a model school for in-service training, I would be willing to work with teachers from other schools and have them observe as well as teach practice lessons in my class. — strongly agree — agree — disagree — strongly disagree

13. A transfer project should involve only one-half the other school's staff with those not involved used as a control group -- receiving no in-service training from that project. — strongly agree — agree — disagree — strongly disagree

14. Given the fact that teacher release time is difficult to obtain, during a transfer project I would recommend
    a. the school's staff decide on a specific date when all teachers would be required to release their classes once a week to either a student teacher, a resource teacher, or an aid.
    b. once a week all children be released from school at noon.
    c. eliminating such costly items as video-taping in classrooms, color slides taken in classrooms, and consultants, and diverting these funds to pay substitute teachers.
    d. other (please specify).

15. Because of the nature of the academic year, most pre-planning for a project must occur during the summer. The school's staff should be involved in this pre-planning even though to do so would require disruption of the normal summer vacation.

strongly agree   agree   disagree   strongly disagree

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16. If members of the school's staff were involved on a voluntary basis in the summer pre-planning, I would be willing to accept the project design even though I did not participate in the planning.

strongly agree   agree   disagree   strongly disagree

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17. Agencies providing funding require project accountability by pre-post evaluation in order to assess whether or not their money has been well spent, Given this fact, I would recommend that
    a. an effort be made to convince funding agencies to eliminate the concept of pre-post evaluation.
    b. evaluation be accepted as an inherent characteristic of a project.
    c. other (please specify).

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18. Given the fact that strand leaders are paid on a half-time basis (20 hours per week), I would recommend in a transfer project that DELTA staff members devote most of their time to
    a. helping develop the strands of the teacher training model at the transfer school.
    b. working in the classrooms as resource people at the transfer school.
    c. other (please specify).

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19. Given the fact of limited funding, I would recommend during a transfer project the following priorities in expending funds. Please rank from 1 (high) to 3 (low).
    a. more outside resource people (consultants)
    b. classroom video-taping
    c. photographs taken in classrooms

Testing

20. At the beginning of Project DELTA, my attitude toward testing was

positive   negative

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21. Feedback on the October testing has been sufficient.

strongly agree   agree   disagree   strongly disagree

22. The following standardized tests and inventories were used during the October evaluation. Please indicate the ones you feel could be useful to a classroom teacher.
   a. Metropolitan Reading Readiness
   b. ETS Listening
   c. ETS Word Analysis
   d. ETS Reading
   e. I AM (self-concept inventory)
   f. Listening-Comprehension Inventory (to determine if dialect differences cause comprehension differences)
   g. Language Preference Inventory (to determine the dialect a child prefers to use)
   h. Phonological Spelling Inventory (to determine if dialect differences cause differences in spelling)
   i. other (please specify)

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23. At present my attitude toward testing is positive negative

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Strand Development

24. Strand development was valuable because the Washington staff had an opportunity to relate to other faculty members.
strongly agree agree disagree strongly disagree

25. Strand development provided suggestions, stimulated new ideas for teaching methods, and helped me examine my classroom program more carefully.
strongly agree agree disagree strongly disagree

26. The ideas and methods developed during the strands are reaching the children at Washington School by teachers using these ideas and methods in the classrooms.
strongly agree agree disagree strongly disagree

27. To ensure a breader range of philosophies on each strand, I would recommend
   a. shortening the time spent in any given strand group so more teachers could be rotated into each strand.
   b. selecting strand groups at random rather than by teacher preference -- to ensure a broader range of philosophies.
   c. designating one meeting per month in each strand group which non-members could attend to observe and contribute.
   d. other (please specify).

Workshops

28. Workshops provided suggestions, stimulated new ideas for teaching methods and helped me examine my classroom program more carefully.	strongly agree	agree	disagree	strongly disagree
29. The ideas and methods developed during the workshops are reaching the children at Washington School by teachers using these ideas and methods in the classrooms.	strongly agree	agree	disagree	strongly disagree

30. I would like to have the following local consultants invited to participate in DELTA or to conduct workshops during the next two months.

a.

b.

Video-Taping

31. Viewing video-tapes of my own teaching methods has been a valuable self-critique.	strongly agree	agree	disagree	strongly disagree
32. Video-tapes of each strand member should be viewed by others in the strand for a group critique.	strongly agree	agree	disagree	strongly disagree
33. Feedback on video-taping has been sufficient.	strongly agree	agree	disagree	strongly disagree
34. As a result of observing my own video-tapes and/or working on strand development, there has been a definite change in my teaching strategies.	strongly agree	agree	disagree	strongly disagree
35, Another workshop should be held so that Washington teachers can learn to use the video-taping equipment.	strongly agree	agree	disagree	strongly disagree

Effectiveness

36. An on-site teacher training program is better able to meet teachers' needs than is a project housed at the University or at the central district office.	strongly agree	agree	disagree	strongly disagree
37. DELTA has had a positive effect on my reading program.	strongly agree	agree	disagree	strongly disagree
38. In addition to strand meetings, for the next two months there should be weekly rap sessions on reading.	strongly agree	agree	disagree	strongly disagree
39. If DELTA were discontinued as of June 1971, the project would still result in a positive effect on next year's reading-language program at Washington School.	strongly agree	agree	disagree	strongly disagree
40. As a result of my involvement in Project DELTA, I feel that I am a more effective teacher than I was a year ago.	strongly agree	agree	disagree	strongly disagree

COMMENTS:

Appendix K

INSTITUTE BIBLIOGRAPHY

INSTITUTE BIBLIOGRAPHY

1. GOALS AND OBJECTIVES

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Appendix L

INSTITUTE SCHEDULE

From: Robert Ruddell and Helen Bacon
To: DELTA Staff
Date: June 18, 1970
bject: Planning for DELTA to be held August 17 - September 4, 1970

	Suggested Activities
August 17 Monday 8:30-10:00 10:00-10:30 Coffee 10:30-12:00 12:00-12:45 Lunch 12:45-1:45 1:45-2:00 Vibrations	Robert Ruddell introducing the Institute "Contributions from the Disciplines for a Reading-Language Curriculum" DELTA Staff in small groups: -objectives of reading-language instruction -material examination Reading for teachers (one article in preparation for next day)?
August 18 Tuesday 8:30-10:00 10:00-10:30 Coffee 10:30-12:00 12:00-12:45 Lunch 12:45-1:45 1:45-2:00 Vibrations	Walter Loban "Instructional Objectives and the Language Curriculum" DELTA Staff in small groups: - objectives -material examination Reading?
August 19 Wednesday 8:30-10:00 10:00-10:30 Coffee 10:30-12:00 12:00-12:45 Lunch 12:45-1:45 1:45-2:00 Vibrations	Robert Ruddell "A Framework for the Language Experience Curriculum" DELTA Staff in small groups: -using the framework -examination of formal (ETS-Primary Cooperative) and informal tests Reading
August 20 Thursday 8:30-10:00 10:00-10:30 Coffee 10:30-12:00 12:00-12:45 Lunch 12:45-1:45 1:45-2:00 Vibrations	Kenneth Johnson "Non-standard English and Reading-Language Instruction" DEMONSTRATION LESSON DELTA Staff in small groups: -attitudes toward geographical and social dialects -oral language analysis Reading?
August 21 Friday 8:30-10:00 10:00-10:30 Coffee 10:30-12;00 12:00-12:45 Lunch 12:45-1:45 1:45-2:00 Vibrations	Helen Bacon "Oral and Written Expression and the Reading-Language Curriculum" Herb Wong "Jazz and Descriptive Language" DEMONSTRATION LESSON DELTA Staff in small groups: -oral language analysis -written language analysis and the instructional program Reading?

	Suggested Activities
August 24 Monday 8:30-10:00 10:00-10:30 Coffee 10:30-12:00 12:00-12:45 Lunch 12:45-1:45 1:45-2:00 Vibrations	Sara Lundsteen "Building A Thinking Skills Curriculum" DEMONSTRATION LESSON DELTA Staff in small groups: -examination of thinking levels through oral and written expression Reading?
August 25 Tuesday 8:30-10:00 10:00-10:30 Coffee 10:30-12:00 12:00-12:45 Lunch 12:45-1:45 1:45-2:00 Vibrations	Constance McCullough "Developing Comprehension Skills in the Classroom" Helen Bacon "Critical Thinking Skills - A Classroom Taxonomy" DEMONSTRATION LESSON DELTA Staff in small groups: -using questions to develop critical thinking Reading?
August 26 Wednesday 8:30-10:00 10:00-10:30 Coffee 10:30-12:00 12:00-12:45 Lunch 12:45-1:45 1:45-2:00 Vibrations	Alan Dundes "Folklore, A Mirror of the Culture" Janet Strothman "Story Telling" DEMONSTRATION LESSON DELTA Staff in small groups: -children's books Reading?
August 27 Thursday 8:30-10:00 10:00-10:30 Coffee 10:30-12:00 12:00-12:45 Lunch 12:45-1:45 1:45-2:00 Vibrations	Virginia Reid "Using Films as Literary Experiences". Charles Gillman DEMONSTRATION LESSON DELTA Staff in small groups: -films and photographs as oral and written stimulus for reading-language development Reading?
August 28 Friday 8:30-10:00 10:00-10:30 Coffee 10:30-12:00 12:00-12:45 Lunch 12:45-1:45 1:45-2:00 Vibrations	Lorraine Morgan "Developing Word Attack in the Language Experience Curriculum" DEMONSTRATION LESSON DELTA Staff in small groups: -word attack analysis and Bank Street, Harper-Row, and language experiences -word attack games Reading?

	Suggested Activities
August 31 Monday 8:30-10:00 10:00-10:30 Coffee 10:30-12:00 12:00-12:45 Lunch 12:45-1:45 1:45-2:00 Vibrations	Jeanne Ahern "Evaluating Reading Progress" DEMONSTRATION LESSON - via video tape (evaluation and language experience) DELTA Staff in small groups: -view May videos -video analysis -demo teaching Reading?
September 1 Tuesday 8:30-10:00 10:00-10:30 Coffee 10:30-12:00 12:00-12:45 Lunch 12:45-1:45 1:45-2:00 Vibrations	Russell Stauffer 'Individualizing Instruction Through the Language Experience Curriculum" DEMONSTRATION LESSON - view video tape (individualizing instruction) DELTA Staff in small groups: -view May videos -video analysis -demo teaching Reading?
September 2 Wednesday 8:30-10:00 10:00-10:30 Coffee 10:30-12:00 12:00-12:45 Lunch 12:45-1:45 1:45-2:00 Vibrations	Dolores Durkin "How Teachers Can Help Parents Aid Children's Reading-Language Development" Moe Richmond DEMONSTRATION LESSON - via video tape (suggestions to parents) DELTA Staff in small groups: -parent materials Reading?
September 3 Thursday 8:30-10:00 10:00-10:30 Coffee 10:30-12:00 12:00-12:45 Lunch 12:45:1:45 1:45-2:00 Vibrations	Helen Bacon "Reading-Language Development and the Total Curriculum" DELTA Staff in small groups: -formulating the language experience curriculum at Washington school
September 4 Friday 8:30-10:00 10:00-10:30 Coffee 10:30-12:00 12:00-12:45 Lunch 12:45-1:45 1:45-2:00 Vibrations	Robert Ruddell "The Task Ahead - Our Role in Developing the DELTA Model" DELTA Staff in small groups: -planning the year ahead: teacher role DELTA staff role transfer to year two evaluating the institute

Note: The lab school children will not be available during the last week of the institute; thus we must develop video lessons to provide the classroom DEMO LESSON.

Need: Recommended reading for each day; then Xerox of reading
Planning of DELTA staff activities in small groups
Planning of DEMO LESSONS, both real and video tape type

Appendix M

DISSERTATION ABSTRACTS

Appendix M-1

PRIMARY GRADE CHILDREN'S ORAL LANGUAGE DISCOURSE: A DESCRIPTION OF THEMATIC RELATIONS

by Marilyn Buckley Hanf

Primary Grade Children's Oral Language Discourse: A Description of Thematic Relations

ABSTRACT

Marilyn Buckley Hanf

This research focuses on the thematic relations within oral discourse of 40 primary grade children. The children were selected on criteria of grade, sex, race and socio-economic status. Cooperating with Project DELTA,* language samples from individual oral language interviews were obtained for analysis.

The five purposes of the study are to (1) investigate language and thought through studying the thematic relations within oral discourse; (2) to describe the distinctive features of discourse; (3) to create indices to measure such features; (4) to apply such indices to children's language; and (5) to evaluate the measurements.

The basic analytic device used in the study was the topic. A topic was defined as a cognitive act expressed through and influenced by language. The four distinctive features of oral discourse were found to be: (1) discourse manifests itself through a series of cognitive/linguistic

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*Project DELTA is a federally funded reading and language program directed by Dr. Robert Ruddell.

acts; (2) these acts are interrelated with each other and to the whole; (3) each act behaves as an agent of communication; and (4) each act expresses a particular cognitive intent.

Indices were constructed to measure the distinctive features of discourse. The feature of the cognitive/linguistic act was accommodated through the index of the topic. This unit was defined as a word or a group of words expressing a proposition and containing an implicit or explicit finite predicate. All of the child's language was segmented into units of topic.

The communication unit (Loban, 1963), an independent predication with all its modification, was also used to segment the language.

The feature of relatedness was provided for by two techniques. One, the discourse was considered in its entirety. And two, an index of related grouping was constructed to measure those units relating to each other.

The feature of units acting as communicative agents was obliged through the index of main topics and levels of modification. If a unit acted as a subject, it was designated as a main topic. If, however, the unit acted as a detail supporting the main topic, it was classified as a particular level of modification.

Lastly, the feature of units expressing cognitive roles was accommodated by the index of cognitive functions.

Each unit was described as to one of eleven cognitive intents; i.e., whether the unit described information, predicted information, judged information, and so forth. All cognitive intents were grouped into two classifications: literal and interpretive.

All the information resulting from application of these indices was transformed into a map: a graphic representation of the child's design of discourse. Four designs were found common to children's discourse: (1) plateau, (2) progressive, (3) balanced, and (4) varied.

The findings resulting from application of the indices to children's language provided answers to the exploratory questions. The conclusions, a summary of the findings, follow.

1. All children in the study, no matter what grade, race, sex or socio-economic status, express their discourse in an organized manner.

2. All children in the study arrange their discourse in varying patterns of main topics and level of modification.

3. Children, on the average, express an idea by relating four topics together. Two of these topics, in general, are main topics and two are details supporting the topic.

4. All children in the study used both literal and interpretive cognitive functions. Neither function appeared as inherently more intellectually superior.

5. Effective oral discourse has the attributes of appropriate fluency, a balance of main topics and different levels of modification, and a variety of cognitive functions.

6. Different children have different styles of discourse. Girls, in particular the white female, have a definite propensity towards elaborate discourse. Boys, on the other hand, express a direct and succinct style. This style is not less effective than the females'; it is only different.

7. Racially, Black males, Black females and white males seem to share the same style. The white female, as mentioned, expresses a unique style.

Robert B Ruddell

Appendix M-2

INSTRUCTIONAL STRATEGIES IN SELECTED READING PROGRAMS: A COMPARISON OF RECOMMENDED PROCEDURES FOR DEVELOPING DECODING SKILLS

by Kenneth Hoskisson

INSTRUCTIONAL STRATEGIES IN SELECTED READING PROGRAMS: A COMPARISON OF RECOMMENDED PROCEDURES FOR DEVELOPING DECODING SKILLS

ABSTRACT

by

Kenneth Hoskisson

This study was designed to investigate the decoding lessons of reading programs in terms of the instructional strategies, interactive direction, and the relationships existing between them in potential teaching-learning situations. It focuses attention on one aspect of decoding--the lessons suggested for teacher use. A detailed review was made of five reading programs in order to discover the percentage of lessons with either an expository or a guided-discovery strategy. The relationships existing between these strategies and the interactive direction categories of initiating, structuring, further processing, summarizing, and conceptualizing/generalizing were also analyzed.

Fifty lessons from each of the five reading programs were analyzed. An instructional strategy checklist (page 64) was developed to code the

questions and statements that the authors of a reading program suggest for teacher guidance.

The first question investigated the possibility of classifying the instructional strategies of the selected reading programs as representative of an expository or a guided-discovery approach to teaching decoding content and skills. The findings indicated and it was concluded that the instructional strategies suggested for teacher use by the reading programs could be classified as representative of an expository or a guided-discovery approach. It was found that each lesson could be classified as having an expository or a guided-discovery tendency. It was also found that the instructional stragety predominately employed by the reading programs was the expository approach.

The second question attempted to determine the interactive direction of the decoding lessons in the reading programs by categorizing the questions and statements suggested as guides to the teacher. The findings indicated and it was concluded that the interactive direction of the decoding lessons in the reading programs analyzed were in the categories of structuring and further processing. There was no clear evidence of the general existence of the other categories of interactive direction.

The third question examined the relationships existing between the suggested instructional strategies of the reading programs and the interactive direction dimension as determined by the statements and questions included for the teacher's guidance. The findings indicated and it was concluded that in these reading programs there was a definite relationship between the expository instructional strategy and the structuring category of the interactive direction dimension. When questions and statements were coded as structuring, they were most likely to be expository in nature. This was especially true of the Merrill Linguistic program.

The application of the procedure developed in this study for the analysis of instructional strategies and interactive direction should generate valuable information for the selection of reading programs by those who are responsible for textbook adoption.

Appendix M-3

SOME RELATIONSHIPS BETWEEN TEACHER PROVISION FOR LEARNER INVOLVEMENT AND QUALITY OF LEARNER RESPONSE

by JoEllyn Taylor

SOME RELATIONSHIPS BETWEEN TEACHER PROVISION FOR LEARNER INVOLVEMENT AND QUALITY OF LEARNER RESPONSE

ABSTRACT

by

JoEllyn Taylor

Currently, much of the research in the field of education is pointing away from a previous emphasis on particular methods of teaching. The effect of the teacher, as a distinct personality, is receiving more and more attention, and investigations are beginning to focus on the teacher-student interactions as the crucial point in learning.

The problem under consideration in this investigation is one exemplified in the classroom by two distinct styles of teaching, content-centered and learner centered-teaching. These two styles evolve from differing attitudes toward planning for children and how children learn. The content-centered teacher operates as if provision of accurate, well-organized information is the role of the teacher. The learner-centered teacher operates as if provision of an open atmosphere for self-expression and interaction is the most important thing she can do to aid learners. The difference lies in emphasis. The one emphasizes content, the other emphasizes learners. Neither is excluded.

This study was designed to compare the differing behaviors in these two types of teachers and to examine the resultant learning in both cases. Without administering treatment,

existing practices were assessed with respect to the hypothesis: A learner-centered curriculum can accomplish its own Humanistic goals, with no sacrifice to the traditional goals of a content-centered curriculum, significantly better than a content-centered curriculum could accomplish both sets of goals.

The subjects for the study were eight teachers and forty-eight 5 - 8 year old children. Each of the six children in a given teacher's group matches one child in each of the other seven groups as closely as possible, on listening comprehension performance, socio-economic status, race and sex.

A single literature selection, Fish is Fish, by Leo Lionni, was used as the vehicle for the study. The teachers were asked to prepare a twenty minute story session with the six children, just as they would ordinarily present a book to their class. Teacher and student behavior was recorded via video tape. The recording was done in one physical setting for all groups, with conditions as similar as possible.

Immediately following the story session, the children were individually interviewed, to assess learning in the two areas, factual knowledge and applied or internalized knowledge. Two persons were trained specifically for this task, and used only audio tape recorders to record responses.

Student responses and learning scores related to learner-centered teacher behavior were then compared to student responses and learning scores related to content-centered teacher behavior.

Teacher behavior was rated by an outside rater, as to its degree of faciliatation of involvement on the following levels: A - use of learner-initiated responses to further learning, B - request for learner responses, and C - domination by teacher. Student responses were rated: 1. Initiates, 2. Responds, 3. Receives (attends), and 4. Does not Receive (non-attentive, other-involvement. Interview responses as evidence of learning were measured on factual learning, and on internalized learning.

The three measures, teacher behavior, students response and student learning scores, were examined in terms of the hypothesis, statistically and descriptively.

The investigation found that students' learning is indeed enhanced when the teacher faciliatates student involvement in the learning session. The teacher who exhibits behavior encouraging learners to initiate comments and questions, and at the same time, not acting to prohibit learner participation heightens the quality of pupil response and the degree of learning results.

Correlations between learner-centered teacher behavior and student responses and scores were positive, and ranged from +.70 to +.87. Highest correlations occurred between 1) learner-centered teacher behavior and students' quality of response (Initiates/Responds as opposed to Receives/Does not Receive), and 2) learner-centered teacher behavior and a high degree of factual learning.

Differences between learner performances revealed few significant differences. In most instances the hypothesis could not be decisively accepted or rejected, due to many tied scores. The tied scores resulted from an insufficient weighting system on the internalized section of the interview instrument. They could not be eliminated in a sampling numbering only forty-eight, so this condition caused the results to be inconclusive. The factual section of the interview, which discriminated sufficiently, did reveal significant differences between the learner-centered teacher and the content-centered teachers at the .002 level of significance.

The findings lead to implications for in-service and pre-service training of teachers, to consider an emphasis upon the learner, in contrast to the traditional emphasis upon curriculum.